



March 2017 • Issue #477

# AMSTATNEWS

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2016–2017

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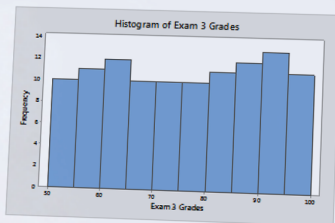
2018 ASA Board of  
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*A Note on Statistics Surveys*



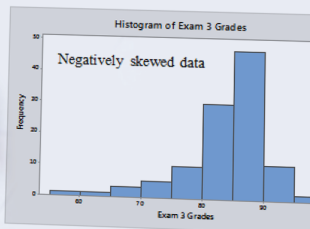
# Everything you need to plan your class.

Mean (~71.86) and median (73)  
are about the same



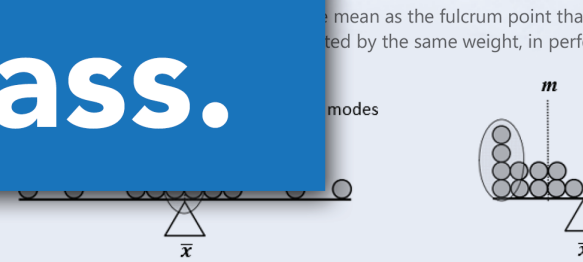
Mean (~75.04) and median (75)  
are about the same

Mean (~66.32) is greater than the  
median (62)



Mean (~83.50) is less than the  
median (89)

## Measures of Spread



Also noted in each picture are the modes (circled) and location of the definitions of these statistics are contained in the following pages.

### Example 1

Ten batteries from brands A, B, and C were tested to determine their

Brand A:	41	289	214	102	38	94	179
Brand B:	39	65	22	64	22	191	99
Brand C:	24	95	139	122	41	360	318

Here are the lifetimes plotted as comparison dotplots in Minitab:

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*Amstat News* (ISSN 0163-9617) is published monthly by the American Statistical Association, 732 North Washington Street, Alexandria VA 22314-1943 USA. **Periodicals postage paid** at Alexandria, Virginia, and additional mailing offices. POSTMASTER: Send address changes to *Amstat News*, 732 North Washington Street, Alexandria VA 22314-1943 USA. Send Canadian address changes to APC, PO Box 503, RPO West Beaver Creek, Rich Hill, ON L4B 4R6. Annual subscriptions are \$50 per year for nonmembers. *Amstat News* is the member publication of the ASA. For annual membership rates, see [www.amstat.org/join](http://www.amstat.org/join) or contact ASA Member Services at (888) 231-3473.

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**View from a Woman Statistician and Data Scientist in the Era of Big Data**

*STATtr@k* is a column in *Amstat News* and a website geared toward people who are in a statistics program, recently graduated from a statistics program, or recently entered the job world. To read more articles like this one, visit the website at <http://stattrak.amstat.org>. If you have suggestions for future articles, or would like to submit an article, please email Megan Murphy, *Amstat News* managing editor, at [megan@amstat.org](mailto:megan@amstat.org).

- 31 **CONSULTANT'S CORNER**  
**A New Column for Consultants**

This column is written for anyone engaged in or interested in statistical consulting. It includes articles ranging from what starting a consulting business would entail to what could be taught in a consulting course. If you have ideas for articles, contact the ASA's Section on Statistical Consulting publication's officer, Mary Kwasny, at [m-kwasny@northwestern.edu](mailto:m-kwasny@northwestern.edu).

- 32 **PASTIMES OF STATISTICIANS**  
**What Do Statisticians Like to Do When They Are Not Being Statisticians?**

This column focuses on what statisticians do when they are not being statisticians. If you would like to share your pastime with readers, please email Megan Murphy, *Amstat News* managing editor, at [megan@amstat.org](mailto:megan@amstat.org).

# Experts Ready for You to Ask Them Anything



Lara Harmon

The first Ask Me Anything (AMA) took place in September with ASA Science Policy Fellow Amy Nussbaum. It was so overwhelmingly popular that the ASA lined up a few more. In case you missed it, an AMA is a written online interview in which a subject-matter expert volunteers to answer questions submitted in real time by the members of a discussion group. ASA student and early-career members can ask professionals vital questions about making the transition from student to working life, building experience, assuming leadership, and more. Here's what's coming up over on <http://community.amstat.org>:

## March 20: Kimberly Sellers Chair, Committee on Women in Statistics

Kimberly Sellers is an associate professor of mathematics and statistics, specializing in statistics. She has held faculty positions at Carnegie Mellon University and the University of Pennsylvania School of Medicine as an assistant professor of biostatistics and senior scholar at the Center for Clinical Epidemiology and Biostatistics. Her areas of interest



and expertise are in generalized statistical methods involving count data that contain data dispersion and in image analysis techniques, particularly low-level analyses including preprocessing, normalization, feature detection, and alignment.

## April 25: Chris Franklin ASA K–12 Statistical Ambassador

Chris Franklin is a recognized leader in K–12 statistics education. She is the lead author of the *GAISE Pre-K–12* and *SET* reports, a proponent of the inclusion of increased statistics content in the Georgia K–12 standards, a recent Fulbright Scholar focusing on statistics education in New Zealand, an ASA Founders Award recipient, a former AP Statistics chief reader, and the current chair of the ASA/NCTM Joint Committee on Curriculum in Statistics and Probability. She also has authored or co-authored two textbooks and numerous articles and book chapters related to K–16 statistics education.



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### Correction

John Bailer's name was misspelled in the February President's Corner column. It has been corrected online: <http://magazine.amstat.org/blog/2017/02/01/initiatives-for-the-long-game>.

# It's What They Say They Heard

Oh, how I vividly remember bumping into an assistant administrator of the Environmental Protection Agency in the elevator. He was a bit irked that he would be late for an all-day retreat of one of his major offices. Somewhat cynically, I suggested that if he arrived at the one-third point of the day and remarked, "Well, this all seems to boil down to a problem in communications," he would probably be right on target. By the look on his face, he did not appear any less irked by my wisdom.

Several weeks later, when he happened to see me in the hallway, he told me that just before the lunch break at the retreat, one of his division directors stood up and opined that the problem seemed to be one of communications. And yes, this time he had a smile on his face.

I even noticed a *Washington Post* headline on December 27, 2016: Obama Blames Democrats' November Defeat on Failure to Communicate Effectively. Why is it that lack of proper communications seems to hold up progress on all fronts and throughout all time?

I think the problem is particularly serious in our profession. In a data-driven analytic world, there seems to be more and more desire to present conclusions, suggestions, and recommendations based on statistical analysis. In the recent presidential election, we were pelted with survey results, each careful to mention the poll accuracy within plus or minus three percentage points.

Even in colloquial talk, one sees statistical intrusions. The weekend before the rather contentious presidential election, Peggy Noonan tried to calm the hassled electorate in a *Wall Street Journal* opinion column. She noted, "Someone is going to win Tuesday and then, if trendlines that have proved reliable in the past continue, the sun will come up on Wednesday." She added humorously, "We claim this with a 3% margin of error."

It may be counterintuitive, but I find the polling results accuracy statement sad and Noonan's comment uplifting. Why? Because, in the polling, I would guess the 3% number is based on the sample size. What about nonsampling error—all the other things that may contribute to the error? Concerns such as randomness, representativeness, sampling frame, wording of questions, order of questions,

and so forth would certainly increase the error range. So, I doubt the true accuracy, and hence the correct information from the survey, is being communicated properly. This is not even mentioning the communication problem in trying to explain how most polling efforts got the winner wrong!

And conversely, why do I like Noonan's tongue-in-cheek remark? Because it shows she is cognizant that statistical reasoning must be employed, communicated, and reported accurately at some major points.

This creeps up again in the refrain familiar to every one of us who has ever introduced himself or herself as a statistician: "Oh, statistics. That was my worst course." I used to be mildly amused by this truly predictable response. But it finally dawned on me that you rarely hear a similar remark concerning complex variables or atomic physics. I'm sure the public is not crazy about imaginary numbers, nor do they get the differences between fission, fusion, and confusion. So why does statistics take it on the chin?

Because of its importance to every facet of life, many more people are exposed to statistical principles. OK, they all may not like it, but at least they know life is subject to variability and uncertainty. Thus, we have an opportunity, and indeed an obligation, to properly communicate statistical concepts and the rudiments of statistical reasoning. And we must strive to do it so people understand the basic logic.

So why is all this of concern? Many of you have heard my mantra: "It's not what we said, it's not what they heard, it's what they say they heard." With our increased use of data, proper analysis is crucial. I certainly believe we have qualified statisticians who can do that. Then we must tell somebody what the analysis is all about—its aims, its methods, its shortcomings, its downsides. Again, we usually do this quite adequately. The next step is that the recipient of the information should hear what we are saying and hear it accurately. They may or may not ask pertinent questions. They may have other topics on their mind. Here, the statistician has an obligation to lend insight and try to ascertain if the message is getting through. This is the part I am not sure we always do well.

But it is the third element that is crucial: "It's what they say they heard." This is where the rubber



Barry D. Nussbaum



Photo courtesy of Stats + Stories  
ASA President Barry Nussbaum records episode 20, "A Statistician Clears the Air," of the Stats + Stories podcast.

hits the road. Somewhere, there is a policy maker, a decision maker, a judge, a jury, an elected official, a doctor who must properly integrate the results into real plans, real actions, judicial decisions, regulations, proper medications, and so forth.

This is a difficult task for statisticians. I have been there. As an expert statistical witness in a trial, you usually have just a few seconds to answer the loaded question of an adversarial attorney. You hope the judge or jury understands you and then, most importantly, they integrate it properly into their decision making.

I hesitate to add that this difficulty in communication might be exacerbated by our use of Twitter, Facebook, Instagram, etc., instead of full-fledged oral or written communication. Yes, I know this is old school. But I am concerned. While I am a true advocate of succinct explanations, I am not sure this can always be accomplished in 140 characters. Naturally, I am also concerned that we now seem to have a universe that allows alternative facts. If ever there were a time to describe our work effectively so as to integrate the true meaning into societal decisions, it is NOW.

I have given many talks in my career, and one of my main points has always been to encourage—even demand—that statisticians carefully review their raw data. I give examples of official data that are wrong. To lighten up a serious topic, I have for years shown a Dilbert cartoon in which Dilbert notes he didn't have any accurate numbers so he just made up one. He further asserts that studies have shown that accurate numbers aren't any more useful

than the one you make up. Someone queries him as to how many studies have shown this and Dilbert answers, "87," with absolute precision. Sadly, until this year, this was quite humorous.

So, what are we doing about all this? One of my initiatives is to make sure statistics are correctly giving the whole story. Here, the ASA is working with John Bailer and Richard Campbell at Miami University. John and his statistics colleagues have teamed up with Richard and his journalism counterparts to produce the series Stats + Stories. As John says, this is "the statistics behind the stories and the stories behind the statistics." The idea, of course, is to tell the full story, accurately and forcefully, with the proper use of the statistical underpinnings.

I have had the pleasure of being interviewed for Stats + Stories in the context of environmental statistics. It was a terrific first-hand experience to learn the concerns and angles from both the statistical and journalistic sides of the table. To me, this goes a long way toward addressing the omnipresent communications problem.

Significantly forward,  
Barry

A handwritten signature in black ink that reads "Barry Nussbaum".

**MORE ONLINE**

Listen to the latest episode of Stats + Stories, "Sex by Numbers," at [www.cas.miamioh.edu/statsandstories](http://www.cas.miamioh.edu/statsandstories).

## TECHNOMETRICS HIGHLIGHTS

# Latest Issue Covers Design, Analysis, Anomaly Detection

Volume 59, Issue 1 of *Technometrics* includes 11 articles covering topics ranging from design and analysis of complex, black-box computer simulations to algorithmic design approaches for customizing and enhancing key properties of physical experiments to anomaly detection in image and other high-dimensional data streams.

In the paper titled “Monotonic Metamodels for Deterministic Computer Experiments,” author **Matthias Hwai Yong Tan** explores the challenging goal of incorporating prior knowledge that the response is monotonic in some of the input variables in deterministic computer simulations. Although the Gaussian process (GP) models ubiquitously used for simulation response surface modeling are not monotonic, incorporating such information can substantially improve the accuracy and interpretability of the response predictions. Previous methods that project GP sample paths onto some space of monotonic functions fail to preserve important GP modeling properties such as the prediction uncertainty shrinking at locations close to the design points. This paper develops a weighted projection approach that more effectively uses information in the GP model, together with two computational implementations. The first is isotonic regression on a grid, while the second is projection onto a cone of monotone splines, which alleviates problems encountered in a grid-based approach. Simulations show the monotone B-spline metamodel gives particularly good results.

In “Sliced Full Factorial-Based Latin Hypercube Designs as a Framework for a Batch Sequential Design Algorithm,” **Weitao Duan, Bruce E. Ankenman, Susan M. Sanchez, and Paul J. Sanchez** develop a method for more efficiently fitting complex models such as finite element or discrete event simulations. To reduce experimental effort, sequential design strategies allow experimenters to collect data only until some measure of prediction precision is reached. The authors’ batch sequential experiment design method uses sliced full factorial-based Latin hypercube designs, which are extensions of sliced orthogonal array-based Latin hypercube designs. At all stages of the sequential design, their approach achieves good univariate projection properties, and the structure of their designs tends to produce uniformity in higher dimensions, which results in the excellent sampling and fitting properties the authors demonstrate with empirical and theoretical arguments.

In “Optimization of Multi-Fidelity Computer Experiments via the EQIE Criterion,” **Xu He, Rui Tuo, and C. F. Jeff Wu** address the problem of Gaussian process-based optimization for multi-fidelity deterministic computer experiments having tunable levels of accuracy. They propose an optimization scheme that sequentially adds new computer runs based on two sampling criteria. Their first expected quantile improvement criterion scores the desirability of candidate inputs for a fixed accuracy level of the simulator, and

their second expected quantile improvement efficiency criterion scores the desirability of candidate combinations of inputs in conjunction with simulator accuracy level. The latter allows not only the inputs, but also the simulator accuracy level, to be strategically chosen for the next round of simulation. Their approach is shown to outperform the popular expected improvement criterion.

In “Calibration of Stochastic Computer Simulators Using Likelihood Emulation,” **Jeremy E. Oakley and Benjamin D. Youngman** combine simulation and physical experimental data in the so-called calibration problem, which involves modeling the difference or discrepancy between physical reality and its imperfect representation embodied by the simulation. Their focus is on stochastic computer simulation models in which each run takes perhaps one or two minutes. They combine a Gaussian process emulator of the likelihood surface with importance sampling, such that changing the discrepancy specification changes only the importance weights. One major benefit of this is that it allows a range of discrepancy models to be investigated with little additional computational effort, which is important because it is difficult to know the structure of the discrepancy in advance. The approach is illustrated with a case study of a natural history model that has been used to characterize UK bowel cancer incidence.



In “Design and Analysis of Experiments on Non-Convex Regions,” **Matthew T. Pratola, Ofir Harari, Derek Bingham,** and **Gwenn E. Flowers** present a new approach for modeling a response in the commonly occurring but under-investigated situation in which the design region is non-convex, for which current tools are limited. The authors’ new method for selecting design points over non-convex regions is based on the application of multidimensional scaling to the geodesic distance. Optimal designs for prediction are described, with special emphasis on Gaussian process models, followed by a simulation study and an application in glaciology.

In “Nonstationary Gaussian Process Models Using Spatial Hierarchical Clustering from Finite Differences,” **Matthew J.**

**Heaton, William F. Christensen,** and **Maria A. Terres** consider the modeling of large spatial data having nonstationarity over the spatial domain, which is frequently encountered in science and engineering problems. The computational expense of Gaussian process modeling can be prohibitive in these situations. To perform computationally feasible inference, the authors partition the spatial region into disjoint sets using hierarchical clustering of observations with finite differences in the response as a measure of dissimilarity. Intuitively, directions with large finite differences indicate directions of rapid increase or decrease and are, therefore, appropriate for partitioning the spatial region. After clustering, a nonstationary Gaussian process model is fit across the clusters in a manner that allows the computational

burden of model fitting to be distributed across multiple cores and nodes. The methodology is motivated and illustrated using digital temperature data across the city of Houston.

The next three papers develop tools that advance the design and analysis of physical experiments by harnessing modern computational capabilities. In “Benefits and Fast Construction of Efficient Two-Level Foldover Designs,” **Anna Errore, Bradley Jones, William Li,** and **Christopher J. Nachtsheim** further substantiate recent arguments that small foldover designs offer advantages in two-level screening experiments. In addition, the authors develop a fast algorithm for constructing efficient two-level foldover designs and show they have superior efficiency for estimating the main effects model. Moreover, their algorithmic approach allows fast construction of designs with many more factors and/or runs. A useful feature of their compromise algorithm is it allows a practitioner to choose among many alternative designs, balancing the tradeoff between efficiency of the main effect estimates vs. correlation and confounding of the two-factor interactions.

In “Two-Level Designs to Estimate All Main Effects and Two-Factor Interactions,” **Pieter T. Eendebak** and **Eric D. Schoen** investigate the related problem of designing two-level experiments large enough to estimate all main effects and two-factor interactions. The effect hierarchy principle often suggests that main effect estimation should be given more prominence than the estimation of two-factor interactions, and orthogonal arrays favor main effect estimation. However, recognizing that complete enumeration of orthogonal arrays is infeasible in many practical settings, the authors develop a

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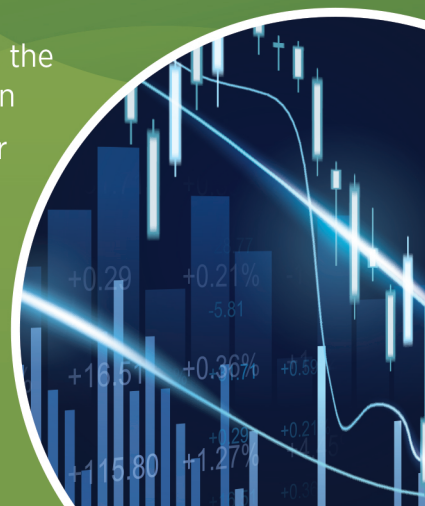
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partial enumeration procedure and establish upper bounds on the D-efficiency for the interaction model based on arrays that have not been generated by the partial enumeration. Their optimal design algorithm generates designs that give smaller standard errors for the main effects, at the expense of worse D-efficiencies for the interaction model, relative to D-optimal designs. Their generated designs for 7–10 factors and 32–72 runs are smaller or have a higher D-efficiency than the smallest orthogonal arrays from the literature.

In “Joint Identification of Location and Dispersion Effects in Unreplicated Two-Level Factorials,” **Andrew J. Henrey** and **Thomas M. Loughin** relax the assumption that the location effects have been identified correctly when estimating dispersion effects in unreplicated factorial designs, violation of which degrades the performance of existing methods. The authors develop a method for joint identification of location and dispersion effects that can reliably identify active effects of both types. A normal-based model containing parameters for effects in both the mean and variance is used and parameters are estimated using maximum likelihood with subsequent effect selection via a specially derived information criterion. The method successfully identifies sensible location-dispersion models missed by methods that rely on sequential estimation of location and dispersion effects.

“Anomaly Detection in Images with Smooth Background via Smooth-Sparse Decomposition,” by **Hao Yan**, **Kamran Paynabar**, and **Jianjun Shi**, tackles the emerging problem of how to analyze high-dimensional streams of image-based inspection data for process monitoring purposes. In

manufacturing applications such as steel, composites, and textile production, anomaly detection in noisy images is of special importance. Although several methods exist for image denoising and anomaly detection, most perform denoising and detection sequentially, which affects detection accuracy and efficiency, in addition to being computationally prohibitive for real-time applications. The authors develop a new approach for anomaly detection in noisy images with smooth backgrounds. Termed smooth-sparse decomposition, the approach exploits regularized high-dimensional regression to decompose an image and separate anomalous regions by solving a large-scale optimization problem. Fast algorithms for solving the optimization model are also developed.

In “Estimation of Field Reliability Based on Aggregate

Lifetime Data,” **Piao Chen** and **Zhi-Sheng Ye** present an approach for fitting distribution models to failure data that are aggregated (with substantial loss of information) in a particular way that is common in reliability databases for complex systems with many components. Instead of individual failure times, each aggregate data point is the sum of a series of collective failures representing the cumulative operating time of one component from system commencement to the last component replacement. This data format differs from traditional lifetime data and makes statistical inference challenging. The authors consider gamma and inverse Gaussian distribution models and develop procedures for point and interval estimation of the parameters, based on the aggregated data. ■

## A Note on *Statistics Surveys*

*Statistics Surveys* is an online journal for expository papers about specific statistical methodology. It is an outlet for papers that are deep and magisterial reviews of subfields within statistics, such as bootstrap methodology for finite populations, spatial prediction with Big Data, or causal inference.

The journal is jointly owned by the American Statistical Association, Bernoulli Society, Institute of Mathematical Statistics, and Statistical Society of Canada. Access is free and can be gained at <https://projecteuclid.org/info/euclid.ssu>. Also, there is no publication fee.

To benefit readers and authors, the review process is swift. The journal’s editorial board deplores long delays and indecisiveness and is committed to quick and constructive feedback. Board members referee the papers they are sent, rather than the papers they wish had been written, and ties always go to the runner.

*Statistics Surveys* seeks more high-quality submissions. The first chapter of nearly every PhD thesis is a literature review. Generally, the effort spent in writing that chapter falls upon rocky ground, and does not lead to any publication. But with light editing, such a chapter could be an ideal submission for *Statistics Surveys*.

*Statistics Surveys* does not seek papers that show methodological novelty, but rather the distilled wisdom of prior publications.

If you have any questions or need more information, contact one of the editorial board members at <http://imstat.org/ss>.

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## MEMBER SPOTLIGHT

# Mohammed Shayib

I fled my home town—Alma, Safad, northern Palestine—with my family when I was only 5 years old.

This was during the first Arab-Israeli war, in 1948. I made the trip on a cow's back to southern Lebanon.

For the next few years, my family moved from one village to another, seeking a place to make a living. It was then that I started my schooling.

It was in the village school. There were 30 students, from all grades, and we had one teacher. On my first day of school, I sat on a wooden step-stool, next to the teacher and near the door. Everyone started reading, one by one, and I could not take it. I ran next door to my parents. When my father saw me, he asked, "What are you doing here?" I said, "Everyone is reading except me." He said I had to wait my turn to read and sent me back, instructing me to tell the teacher I had run to the restroom. I have been studying ever since.

It was my father who got me to love mathematics. He helped me memorize the multiplication tables, despite he and my mother never attending school. My half uncles did, so they helped me with reading and writing. By the time I made it to sixth grade and was first in my class on the national exam, my family had settled in a village for Palestinian refugees.

Throughout high school, I lived with my uncle and attended several schools in Sidon, Lebanon. During my last year, I went to the National Evangelical Institute, where I graduated among the top four in the class.

Thanks to a scholarship from the United Nationals Relief and Works Agency, I went to Ain Shams University in Cairo, Egypt, despite the six-days war in 1967 that interrupted the final exams. I earned my bachelor of science degree in special mathematics with first-class honors. After graduation, I became a full-time teaching assistant in the department of mathematics at the University of Riyadh, in Saudi Arabia. While there, I also earned my master's degree at the University of Liverpool, UK, and AUB, Beirut, Lebanon.

I received my visa to go to the UK in 1970. On my way to buy my airplane ticket, a friend persuaded me to check with the American Friends of the Middle East State Department Agency in Beirut to see if I could get a scholarship to go to

the United States. I did. They paid for my airplane ticket, my medical insurance, and my graduate degree for a year. I went on and finished my degree at AUB, Beirut, in August 1972. My thesis was titled "Number Theory: Gaussian Integers as Sums of Squares." After I finished my master's degree, I transferred to Texas Tech University and began work on my PhD in mathematics.

In early May of 1972, I met my future wife. It took a year to prepare for the wedding, but on August 18, 1974, she became my wife and joined me in El Paso, Texas. We have been married for almost 43 years now.

In the summer of 1976, I took a class in sampling theory. The course, instructed by Thomas Boullion, hooked me on statistics. The course was interesting; I like crunching numbers and making sense out of them. I wrote my dissertation on error rates in Poisson discrimination and graduated in 1979.

The week I earned my PhD, the chair of the department of mathematics at Texas Tech asked me if I was interested in working at Cottley College, a junior college for women in Nevada, Missouri. I said I was, but I had to go back to Maine and eventually back to Kuwait because of my visa. This was 1980.

By 1990, I had two daughters and two sons and had co-authored *Applied Statistical Methods*.

In August of 1990, Iraq invaded Kuwait. Because our oldest son was born in America, we were able to evacuate to the United States. We went back to Lubbock, Texas, where I taught for two years before joining Texas Instruments. During my tenure there, I was certified by the American Society for Quality as a Certified Quality Engineer. In 1998, I was laid off, but found a job at Texas Tech as a systems analyst until 2004, when I went to teach at Prairie View A&M University.

I retired this past August, but still love to teach statistics. Currently, I am an adjunct faculty member in the department of mathematics at Lone Star College.

I contribute to the ASA in memory of my parents, who were committed to me staying in school regardless of our resources. Moreover, it allows the ASA to promote awareness of numbers and data in general. When they are used correctly based on solid procedures, they can lead to a better life. ■

### MEMORIAL DONATION

To contribute to the ASA in memory of someone who influenced you, visit [www.amstat.org/giving](http://www.amstat.org/giving).

# 2018 ASA BOARD OF DIRECTORS CANDIDATES

*The ASA announces the selection of candidates for the 2017 election. The winning candidates' terms will begin in 2018. Make sure to look for your ballots in your email inbox and vote early. Voting begins at 12:01 ET March 15 and ends at 11:59 p.m. PT on May 1. Complete candidate biographies can be read at [ww2.amstat.org/candidatebios/2017candidatebios.pdf](http://ww2.amstat.org/candidatebios/2017candidatebios.pdf).*

## RUNNING FOR PRESIDENT-ELECT

### David L. Banks

Professor of the Practice, Department of Statistical Science, Duke University



Banks

I have been fortunate to have had a checkered career. It has exposed me to a wide range of statistical activity, mostly at universities and federal agencies. But my first job out of college was doing statistical analyses for a government contractor, which is how I learned what I wanted to be.

From graduate school forward, the ASA has been a presence in my professional life. I joined in 1980, attended my first Joint Statistical Meetings in 1982, and am happy to have been at every JSM since Philadelphia in 1984. The ASA is my community, and the friendships I have found within it have enriched my life.

The American Statistical Association is 177 years old. It is a social machine built by generations of statisticians to achieve two purposes: to advance our profession and to advance our careers. In terms of the first goal, the ASA has had many successes—it has distinguished statisticians from mathematicians, enabled and empowered the federal statistical agencies, and brought statistical thinking into the high-school curriculum.

But challenges change. I believe the hurdles ahead are to ensure that public policy is based upon data, rather than politics, that we strategically redefine our relationship with the emerging data science community, and that we help the general citizenship to see us as somewhat cooler and a bit more trustworthy than they presently do.

In terms of the second goal, the ASA has been strikingly successful in fostering careers. Compared

to many other fields, we are, on median, well compensated and enjoy high levels of job satisfaction. But we need to do more to raise the floor. And, since careers at different stages use the ASA's assets in different ways, we need to clue in junior colleagues on how the ASA can help leverage professional growth.

One of the joys of our profession is that, compared to other sciences, we are relatively diverse in gender and employment (besides academics and industry, we are prominent in government). We must work to build that out more. If elected as ASA president, I would use the office to further our field and to help others advance.

Statistics has pivoted from mathematics toward applications (we are a big tent, and there will always be need for deep theory, but our world is bigger than that). We must provide capacity to support that change. For example, I believe MS and PhD students (and everyone else) should have easier opportunities to learn the modern heavy-lifting Big Data programming languages, such as Spark. The ASA can help that happen. Also, I believe that our publication system no longer efficiently serves our science—I have an extended rant on this that appeared in *Amstat News* #424—and I shall urge the ASA to modernize.

Those who know me know that I would be an active president. The office is a once-in-a-lifetime opportunity to work with some of the best people on the planet to make our profession stronger. I could never waste that “chance.” ●

## RUNNING FOR PRESIDENT-ELECT

# Karen Kafadar

Chair and Commonwealth Professor, Department of Statistics, University of Virginia

*“... [A]s new discoveries are made, new truths discovered, and manners and opinions change, with the change of circumstances, institutions must advance also to keep pace with the times.” - Thomas Jefferson*

I am pleased to run for ASA president at a time when our strategic plan goals—enhancing diversity and breadth of our association, increasing visibility of our profession, and ensuring our future—are as urgent as they have ever been. But the “circumstances” that drive our goals have changed: We face complex challenges and we “must advance also to keep pace with the times.”

### Challenges

Our profession faces threats in many fields (data science, psychology, economics, bioinformatics) whose training may include casual brushes with statistics. This has created populations of self-proclaimed statisticians who can sideline us in critical research areas unless we actively change our approach to statistical education and our response to society’s needs to be more relevant to today’s demand for solutions to complex multifaceted problems.

Complex problems—such as detecting emerging epidemics, ensuring food safety, protecting our communications, and establishing reliable standards—cannot be solved by single individuals. More urgently, we need to anticipate these needs before others capitalize on our delay and develop attractive, but flawed, approaches. These challenges require diverse talents that include domain scientists and the best statistical solutions from statisticians whom we attract to our field and prepare to face big problems.

The ASA must create ways to forecast these tsunamis of change, identify our present and future statisticians to address them, and assist our members in developing data-based solutions that require our statistical expertise.

### Teams for Complex Problems

These challenges present opportunities to promote our profession and to grow our field, both in numbers of statisticians and in the nature and quality of research solutions that define us. In my experience, statisticians have been critical components of teams that address problems in academe, industry (HP), and government (NIST, NCI). All too

often, this involvement arises by serendipity. Two examples are the 2009 NAS [National Academies of Science] report on forensic science and the IPCC [Intergovernmental Panel on Climate Change] climate change reports ([www.ipcc.ch](http://www.ipcc.ch)); on both, the ASA reinforced statisticians’ roles by keeping the topics on congressional and media radar screens. We need to develop further mechanisms to both forecast areas of change and respond to them while we continue to build on our past successes.

### Engaging our Sections and Chapters

We can start by mobilizing the talent in our sections and chapters. In education, many ASA chapters have active connections with their local schools and universities. Our future ASA members will come from diverse populations only if they can identify with those they see today. The [ASA] Board and I can work with ASA chapters to support good role models on their outreach visits to local colleges, elementary [schools], and high schools. Next, experts in sections’ disciplines such as the sciences, health care, and computing can easily identify critical problems within their domains. The ASA can mobilize teams to match these problems with scientific and statistical expertise and initiate mechanisms to tackle them.

### The Next Statistical Frontiers

The age of self-contained problems solved by analyzing a few data sets is rapidly being replaced by global challenges that span multiple disciplines whose diverse data demand a myriad of methodological approaches. We must design mechanisms so our engagement on important complex problems is more likely and timely than mere serendipity, and then deliver results. I am honored by the opportunity to serve the ASA as president, and will work with the diversity of expertise and talent in our association to develop ways to better enable us to identify, mobilize, support, and encourage our members to work on important problems and, in so doing, learn from all of you as well. ●



Kafadar

## RUNNING FOR VICE PRESIDENT

# Lorraine Denby

Principal, Murray Hill Data Science



Denby

**M**y history within the ASA has been that, when elected to an office, I have created initiatives that make a lasting mark on our profession, raised the funds as needed, and carried them out to fruition. Some of these initiatives are still in place today. I would be grateful to have this opportunity again as your vice president.

For example, you may not know the history of *Amstat.org*. As representative to the Council of Sections in the mid-90s, I decided that it was time for the ASA to have a web presence. I approached the board and got its approval, but no financial assistance. I then approached each section for a donation toward the project, raised over \$30k, formed the committee, and voila! *Amstat.org* was born. By the way, our first URL choice (*asa.org*) was already taken. Many kudos to my great committee as I did not have the talents to do this on my own. Our design and initial server stayed in place for many years.

As chair of the Graphics Section, I initiated the student poster competition where elementary and high-school students pose a question of interest, collect and analyze the related data, and display the results in a poster. I got the idea by attending an ISI conference in Tokyo. Such a contest was in place in Japan, where over 10k students submitted entries. The winning posters were displayed at JSM. I arranged an opening reception and invited the ambassador from Japan to attend. We were honored by the vice ambassador. The most recent poster winners were featured in August 2016 *Amstat News*.

The first ASA Data Expo presented a data set for members to analyze and display their results in a poster session at JSM. It was an artificial data set that, when projected the right way, displayed the word eureka. I decided that it would be a more meaningful exercise if we used real data. Thus, for the next several years, I chaired the Data Expo and obtained real data to be analyzed: crab fishery data from Alaska Fish and Wildlife, places rated data

from the *Places Rated Almanac*, and baseball salary data. I even arranged for crab legs to be donated from Alaska and put on a crab dinner for those who participated. The Data Expo continued for 30 years, until 2013, and featured the analysis of real data.

But, these are examples from the past. What would I like to do in the future?

Increase public and business awareness of statistics. Anyone who has a computer with some number crunching software feels that he/she can analyze data properly. My daughter worked at a business intelligence company. When she tried to convince them to hire someone with training in statistics, they felt there was no need for that since she could fill that bill with her two statistics courses in college. Yet, their business was based on the analysis of Big Data sets and advising clients about important business decisions based on this analysis. This situation is all too common. We need to develop a program to educate businesses about the need for trained statisticians and the benefits they could reap by hiring them.

Sustainability of our society. Of the 7,000 JSM participants last year, about 1,500 were students. But, do the students continue to join the ASA upon reaching the business world? For the most part, not a large enough percentage does. We need to develop programs that will interest students in continuing their membership and becoming active members of our society. We can run focus groups for students at JSM. Doing so will give us ideas to implement so the ASA will better meet their needs. I will also work with our chapters to encourage and support them in sponsoring local meetups, targeting JSM first-timers or potential members.

Webinars are a popular vehicle these days for conducting meetings and training. We could add more of them to our offerings. Be assured that, if elected, I will initiate one or more programs that will have lasting value to our society and profession. I hope you will provide me that opportunity. ●

### MORE ONLINE

Complete candidate biographies can be read at [ww2.amstat.org/candidate/bios/2017/candidate\\_bios.pdf](http://ww2.amstat.org/candidate/bios/2017/candidate_bios.pdf).

# Katherine Monti

Retired from Rho, Inc.

I am indeed honored to be considered to be a vice president of the ASA. The field of statistics has come a long way since I joined the ASA in 1975 (two years before John Tukey formally introduced box and whisker plots in his *Exploratory Data Analysis*). The association has come a long way, too. Neither statistics nor the ASA will stop changing, and that's a good thing.

The ASA is always changing as the membership grows. But the association not only needs new statisticians, the world needs more statisticians. Encouraging students to become statisticians has been a continuing goal for many of us. To this end, I have enjoyed giving talks at career nights, hosting career-oriented roundtables, and contributing to the *Amstat News* career-oriented series (A Day in the Life of a Statistician and STATtr@k).

The Biopharmaceutical Section's pharmaceutical statisticians video (<http://community.amstat.org/bioph/home>) has demonstrated that outreach efforts really work to attract young folks to the field. Reaching out works! But we have to keep finding new and engaging ways to encourage students to play in all corners of our diverse professional sandbox, or to at least let them know about statistics, because even those who choose other careers need to know at least some statistics!

Encouraging the appropriate application of statistics is another crucial challenge. I have seen a legal case partially derailed by a PhD nonstatistician with his own way of thinking about data, an MD nonstatistician achieve significance in a clinical trial by treating the three-month data and the six-month data on the same patients as independent results, and, well, we all have our horror stories. Even daily news reports can give us pause: Did that study in the headlines control for the covariates that bias the results if not taken into account? All too frequently, the answer is no.

As our Big Tent of Statistics grows even wider, we need to work on “Big Education” and “Big Communication” regarding the principles of design, the methods of analysis, and the ethical and valid interpretation of results. What types of programs increase our numbers and expand the appropriate use of statistics in applications?

Many academic programs now incorporate supervised consulting experience into interdisciplinary consulting labs, some of which contribute to training of statisticians in developing countries. The ASA has backed pro bono efforts such as the student-run StatCom (Statistics in the Community) and the outreach group Statistics without Borders. The newly instituted *ThisIsStatistics* campaign uses social media to encourage the exploration of statistics, and expanding the use of podcasts is one of the strategic initiatives of 2017 ASA President Barry Nussbaum. All of these efforts demonstrate our commitment to encouraging interest in the field and in the sound use of statistics. Tweets, podcasts, Facebook, Pinterest, K–12 online resources—the association is evolving with the times and will necessarily continue to do so. The ASA has a lot to tackle as it continues to evolve, so a broad perspective is valuable.

The job portion of my (very rewarding) career has taken me from academia to non-pharma industry to devices to pharmaceuticals (at a sponsor and then at a CRO), with some additional consulting along the way. The equally rewarding service portion of my career includes diverse leadership roles in ASA chapters, committees, sections, and the board. If elected, I look forward to bringing all these perspectives to serve the ASA as it moves forward. Member input is always highly valued, so please share your ideas with any of those serving on the ASA Board. Remember: Voting in the ASA election is an important form of input! ●



Monti

### John L. Czajka

Senior Fellow, Mathematica Policy Research, Inc.



Czajka

I would be honored to serve as one of the Council of Section's representatives to the board of directors. As a recent chair of the Council of Sections, an earlier vice chair, and a former officer in three sections, I believe that I am well prepared to represent the sections on the ASA Board of Directors.

Under the first of three themes, "Fulfilling Our Role as 'The Big Tent for Statistics,'" the ASA's Strategic Plan observes that a strength of the association is its mix of members from education, business and industry, and government. Students have provided the largest source of growth in ASA membership for a number of years, but retention of student members once they complete their degrees has been low. Retaining members who leave academia may pose the greatest challenge, but is critical to maintaining the diversity of our membership and achieving other goals of the association. One of my priorities as a member of the board of directors would be to expand the ASA's efforts to retain those former student members who have begun careers in business and industry and government. This must go hand-in-hand with continuing to support our strong academic membership.

Under the second theme of "Increasing the Visibility of the Profession," I strongly support the ASA's efforts to "promote the value of sound

statistical practice" in policymaking. The importance of increasing the visibility of our association and profession will undoubtedly grow in the next few years. I commend the ASA for its initiatives in this area, which include the preparation of white papers, advocacy in support of the federal statistical system and major research budgets, the release of policy statements, and the development of resources for policymakers. As a participant in the public policy arena professionally, I would work as a board member to enhance these activities.

As one who has been active in sections from early on, I am puzzled that fewer than half of the ASA's members belong to sections. We need to understand why this is so and whether greater participation in sections is a goal that the ASA should pursue. For starters, I would work with the ASA to determine how we could enhance our membership data to enable us to better address fundamental questions about participation in sections. For example, how many of those who do not belong to sections once did so—and for how long? More effectively serving our membership may very well involve an expanded role for the sections.

The ASA has been a keystone of my professional life for more than 30 years. I would welcome the opportunity to share my extensive experience by serving on the association's board of directors. ●

### Katherine Halvorsen

Professor of Mathematics and Statistics, Smith College



Halvorsen

My primary concern for our profession is that we continue to promote awareness of the essential importance of statistics in natural and social science research, as well as in the public sphere, including government, industry, and education. The ASA's strategic plan addresses my concern through its emphasis on membership growth in both numbers and diversity and on education from kindergarten through 12th grade, through post-graduate continuing education, and through outreach to special groups such as journalists and Capitol Hill staff. I strongly support the ASA's work on the undergraduate curriculum, the statistical education of teachers, and outreach to K–12 teachers through Meeting Within a Meeting.

Having served as chair of the Council of Sections, I have worked with groups applying to become new sections, as well as with the established sections, all of whom are concerned about having opportunities for their members to present invited sessions, panels,

posters, and short courses at JSM. The proliferation of new sections fits neatly into the ASA's goal of being "The Big Tent for Statistics," encouraging a broadening and diversification of membership, but becomes unwieldy when we have to find opportunities for these groups to present at JSM. We need to find additional opportunities for members to present their work and network with others who share their interests. This might come through new specialized conferences (such as the Conference on Statistical Practice or Women in Statistics and Data Science), journals, webinars, or even newsletters. I would like to work with the board of directors to address these issues.

I would be honored to serve as one of the Council of Section's representatives to the ASA Board of Directors. I have been a member of the association since the 1980s and have served as chair and vice-chair of both the Council of Sections and the Advisory Committee on Continuing Education. I currently serve on the Leadership Support Council. ●



## RUNNING FOR COCGB REPRESENTATIVE TO THE BOARD

### Donsig Jang

Vice President and Director, Center for Excellence in Survey Research, NORC at the University of Chicago

If elected to serve as a Council of Chapters representative to the board, I will work with other board members to support ASA to have a strategic plan (Enhancing the Diversity and Breadth of Our Association) well implemented. I strongly believe that this data-driven world brings us statisticians an exciting opportunity to bring our value to help improve every part of our lives. But it won't happen without efforts.

As an applied statistician working in an environment with subject-matter researchers who are often highly quantitative, I strongly feel that real value statisticians should be able to bring to is not just statistical method, but statistical lens to solve problems. It requires understanding of fields we are working on, communications skills to converse with clients and collaborators in the field, and proactive leaderships to work together with team members.

I often made a joke that statistical value for a given project is not defined by a statistician, but by a project director or subject-matter expert. It's largely true to many statisticians almost everywhere. I hope that the ASA provides necessary

supports to members to help them have a right mindset as a statistician.

Another area I would like to work with other board members in is to help broaden statistics to embrace machine learning and other computation disciplines. In this Big Data era, it is our obligation to have statistical principles continue to be relevant in extracting right information from messy data. It needs an effort to have statistical methods bridged with computer science perspectives. I hope that the ASA will become a professional home for data scientists in coming years.

Last, ASA members have become diversified in many different ways in recent years. But there are many professionals who were trained in statistics or similar quantitative disciplines, but are not ASA members. I will work with the ASA Board to have ASA outreach to them, particularly those who are in nonacademic fields.

In closing, it is an honor and privilege to get nominated as a candidate for COCGB. I will continue to support ASA strategic plan and serve for whatever capacity I am allowed, regardless of this election outcome. ●



Jang

### Alexander Cambon

Mathematical Statistician, U.S. Food and Drug Administration

“A strength of the ASA is the mix of members from business/industry, government, and education ...” (From Theme 1, ASA Strategic Plan). It has been my good fortune to work in all three of these categories due to my involvement in the ASA.

In 1996, when I joined the ASA, I was a statistician teaching and implementing statistical process control, experiment design, and reliability testing in an industrial/manufacturing setting. ASA meetings and JSM increased my awareness of the growing field of biostatistics and clinical trials. I eventually became a biostatistician at the University of Louisville (U of L) Statistical Consulting Center. My connections in the ASA Kentucky Chapter played a vital role in facilitating this career opportunity. I went to meetings because I enjoyed the talks, and I enjoyed getting to know statisticians and their different areas of work. This type of informal setting can be an important part of networking and career building.

Many of us can probably think of ways ASA involvement has influenced/enhanced our careers. The membership fee is definitely a high-return investment. In telling our stories, let's get the word out to “make the value of long-term membership evident to all groups that are well represented or ought to be well represented among ASA membership.” Strategies in the plan include expanding “our market research capabilities to provide more and better data about the needs and interests of members and potential members.”

I am honored to be a candidate for the COCGB representative to the ASA Board of Directors. If elected, I will be an advocate for local chapters through my membership in the Council of Chapters and the COCGB. I will work to see that appropriate parts of the strategic plan (examples are highlighted above) are implemented to “make the value of long-term membership evident to all groups that are well represented or ought to be well represented among ASA membership.” ●



Cambon

**MORE ONLINE**  
Complete candidate biographies can be read at [ww2.amstat.org/candidate\\_bios/2017\\_candidate\\_bios.pdf](http://ww2.amstat.org/candidate_bios/2017_candidate_bios.pdf).

### Scott Evans

Senior Research Scientist, Center for Biostatistics in AIDS Research/Department of Biostatistics, Harvard University



Evans

It is an exciting and important time for statistics and the ASA. Rapidly evolving access to data and advances in science and technologies create many challenges. But these challenges are also unprecedented opportunities to advance science, education, and policy through discoveries that can change the world to better serve society.

Statistics is a common denominator for much of science. We must strengthen our relationships and communications with data experts in other disciplines and the broader scientific community, media, and public. We must evolve with the data science and Big Data revolutions, promoting statistics at the core of these progressions.

The need for statistical expertise and leadership has never been greater. The ASA plays an indispensable leadership role as the preeminent professional association for statistics. The ASA's Strategic Plan outlines three foundational themes. The first is enhancing ASA diversity and strength through membership, professional development, and publications. The ASA has more than 19,000 members with increasing student and senior memberships. Effort is needed to attract regular members.

ASA publications have prestigious worldwide reputations and are a major asset to the profession and the ASA. But publications face modern challenges: transition to electronic/open access introducing financial viability issues with reduced individual subscriptions; an irreproducibility pandemic where statistics is often the scapegoat; journal proliferation threatening quality and citation rates; and slow review processes. The ASA must proactively address these issues. It is a time of great change and promise for publications. The ASA can modernize processes to maintain publication quality, utility, and relevancy with continued transitioning to electronic/open distribution while responsibly addressing the implications. New publication/peer-review models (e.g., living/collaborative documents) that exploit technology

to increase access and improve functionality (e.g., rapid reviews) are emerging and can be evaluated. The ASA and social media can engage members in the process. The ASA must seek balance, providing a vibrant journal portfolio that serves the diverse needs of ASA members while protecting against journal proliferation to ensure quality and impact. ASA publications also have the opportunity and responsibility to provide leadership and infrastructure for scientific issue positioning (e.g., ASA's statement on statistical significance and  $p$ -values).

A second theme is ensuring the future of our profession through education, leadership development, and sound fiscal strategy. It is critical that the ASA help lead the transformation of statistics education and teaching in the K–12 and college levels to improve the statistical literacy of society. We must also improve training of our future generations of statisticians, focusing not only on fundamentals, but also on leadership, supporting intangible skills, and creative thinking (i.e., thinking first and then researching and executing). Learning statistics is one thing, but learning to be a statistician is another.

The final theme is increasing the visibility and appreciation of our profession through public awareness, impact on policy, and contributions to interdisciplinary collaborations. The statistical ambassadors program that trains statisticians to communicate with the media plays a crucial role. Expanding our role and impact in science policy is paramount. The ASA now provides leadership and an infrastructure for impacting areas such as climate change and forensics. While interaction with other disciplines is natural for statisticians, we must better communicate with collaborators, engaging as thought leaders in addition to technical roles. The perception of statisticians as calculators, service providers, and data warehouses must evolve to innovative strategists and problem solvers that turn information into knowledge to improve decision making. ●

**MORE ONLINE**  
Complete candidate biographies can be read at [ww2.amstat.org/candidate/bios/2017/candidatebios.pdf](http://ww2.amstat.org/candidate/bios/2017/candidatebios.pdf).

# Richard Levine

Professor of Statistics, San Diego State University Department of Mathematics and Statistics

Over the past 20 years, we have been confronted by a seemingly continuous attempt to rebrand our profession. The buzzwords of metrics (e.g., biometrics, chemometrics, and environmetrics), data mining, informatics, analytics, and now data science hit the scientific community, if not mainstream media, as we grapple with the deluge and complexity of data generated in this information age. The ASA leadership and board of directors have positioned our profession to be at the center of this movement. Recent developments that exemplify these directions include the *ThisIsStatistics* (*ThisIsStatistics.org*) public relations campaign, data science-oriented curricula guidelines in K–12 and undergraduate statistics programs, PStat and GStat accreditations, and the *p*-value statement on good statistical practice. The board, and particularly new directors, must stay on top of, and more importantly ahead of, these data science trends.

At the heart of the data science evolution are digital technologies that have and will provide awesome new opportunities for ASA publications. These challenges present themselves through dynamic scholarly communication systems: peer review models with quicker turnarounds; open access portals with article/blog feedback and review mechanisms; and reproducible research via seamless dissemination of data, code, and methods. The board will be challenged to meet the diverse statistical needs of our readership and the public broadly while maintaining our reputation for scientific excellence and publications of the highest quality.

I would be honored and excited to continue my service to the statistics profession as a member of the ASA Board of Directors. I believe my experience and expertise ideally situates me to represent our publications on the board and collaborate with our membership to shape our initiatives and place statistics as the leader of the data science crusade. ●



Levine

## ASA Election Candidates List

### COAGB (Council of Chapters Governing Board)

#### Chair-Elect

##### Isaac Nuamah

Johnson & Johnson  
Pharmaceutical R&D

##### Andrew Reilly

Retired

#### Vice-Chair, Region 1, District 1

##### Lynn Sleeper

Boston Children Hospital  
and Harvard Medical  
School

##### Ofer Harel

University of Connecticut

#### Vice-Chair, Region 1, District 2

##### Chandan Saha

Indiana University  
School of Medicine

##### David Fardo

University of Kentucky  
College of Public Health

### COSGB (Council of Sections Governing Board)

#### Chair-Elect

##### Natalie Rotelli

Eli Lilly and Company

##### Marlene Egger

University of Utah  
Department of Family  
and Preventive Medicine

#### Vice-Chair

##### Stephine Keeton

Pharmaceutical Product  
Development, Inc.

##### Philip Scinto

The Lubrizol Corporation

### Bayesian Statistical Sciences Section

#### Chair-Elect

##### Steven MacEachern

The Ohio State University

##### Susan Paddock

RAND Corporation

#### Program Chair-Elect

##### Robert B. Gramacy

Virginia Tech

##### Christopher Hans

The Ohio State University

#### Publication Officer

##### Anirban Battacharya

Texas A&M University

##### Xinyi Xu

The Ohio State University

### Biometrics Section

#### Chair-Elect

##### Sheng Luo

The University of Texas  
Health Science Center  
at Houston

#### Candidate withdrew

### Council of Sections Representative

##### Dipankar

##### Bandyopadhyay

Virginia Commonwealth  
University

##### Jay Bartroff

University of Southern  
California

### Biopharmaceutical Section

#### Chair-Elect

##### Xiaohui (Ed) Luo

PTC Therapeutics

##### Richard C. Zink

SAS Institute

#### Program Chair-Elect

##### Margaret

##### Gamalo-Siebers

Eli Lilly and Company

##### Judy Li

U.S. Food and Drug  
Administration

#### Secretary

##### Ugochi Emeribe

AstraZeneca  
Pharmaceuticals

##### Janelle K. Charles

U.S. Food and Drug  
Administration

# ASA Election Candidates List Continued

## **Council of Sections Representative**

**Jennifer Gauvin**  
Novartis Pharmaceutical  
Corporation

**Brian Millen**  
Eli Lilly and Company

## **Business and Economic Statistics Section**

**Chair-Elect**  
**Peter Zadrozny**  
Bureau of Labor Statistics

**Erika McEntarfer**  
U.S. Census Bureau

**Program Chair-Elect**  
**Marina Gindelsky**  
Bureau of Economic  
Analysis

**Mariana Saenz**  
Georgia Southern  
University

## **Government Statistics Section**

**Chair-Elect**  
**Michael Messner**  
Environmental Protection  
Agency

**Elizabeth Mannshardt**  
U.S. Environmental  
Protection Agency

**Program Chair-Elect**  
**Jeffrey Gonzalez**  
Bureau of Labor Statistics

**Jonathan Lyle Auerbach**  
Columbia University

## **Health Policy Statistics Section**

**Chair-Elect**  
**Ofer Harel**  
University of Connecticut

**Ruth Etzioni**  
Fred Hutchinson Cancer  
Research Center

## **Medical Devices and Diagnostics Section**

**Chair-Elect**  
**Zhen Zhang**  
Abbott Vascular

**Beimar Iriarte**  
Abbott Laboratories

**Program Chair-Elect**  
**Gerry Gray**  
Data-Fi, LLC

**Martin Ho**  
Center for Devices and  
Radiological Health

## **Mental Health Statistics Section**

**Chair-Elect**  
**Booil Jo**  
Stanford University School  
of Medicine

**Satesh Iyengar**  
University of Pittsburgh

**Program Chair-Elect**  
**Dulal Bhaumik**  
University of Illinois  
at Chicago

**Ramzi Nahhas**  
Wright State University

## **Nonparametric Statistics Section**

**Chair-Elect**  
**Piotr Fryzlewicz**  
London School of  
Economics

**Dimitris Politis**  
University of California,  
San Diego

**Program Chair-Elect**  
**Richard Samworth**  
University of Cambridge

**Bing Li**  
Penn State University

**Treasurer**  
**Limin Peng**  
Emory University

**Yoonkyung Lee**  
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**John McGready**  
Johns Hopkins Bloomberg School of Public Health

# 2016–2017 Academic Salary Survey

Patricia Hall and Varghese George, Medical College of Georgia, Augusta University; Donna LaLonde and Ron Wasserstein, ASA

**Note:** The number of categories for “Professor” has been reduced this year to get more stable and reliable summary statistics. Those interested may request the tables using previous years’ categories.

The 2016–2017 academic salary survey includes both faculty and nonfaculty statisticians and biostatisticians. We received responses from 59 institutions in the United States. The data included 1,034 faculty and 149 nonfaculty statisticians, with gender information. The quartiles and 90th percentile for relevant categories are provided in the summary tables.

## Faculty Data

The faculty data set, comprised of 679 males and 355 females, included faculty members in 25 statistics departments (N=473), 20 biostatistics departments (N=412), and 17 math sciences departments (N=149).

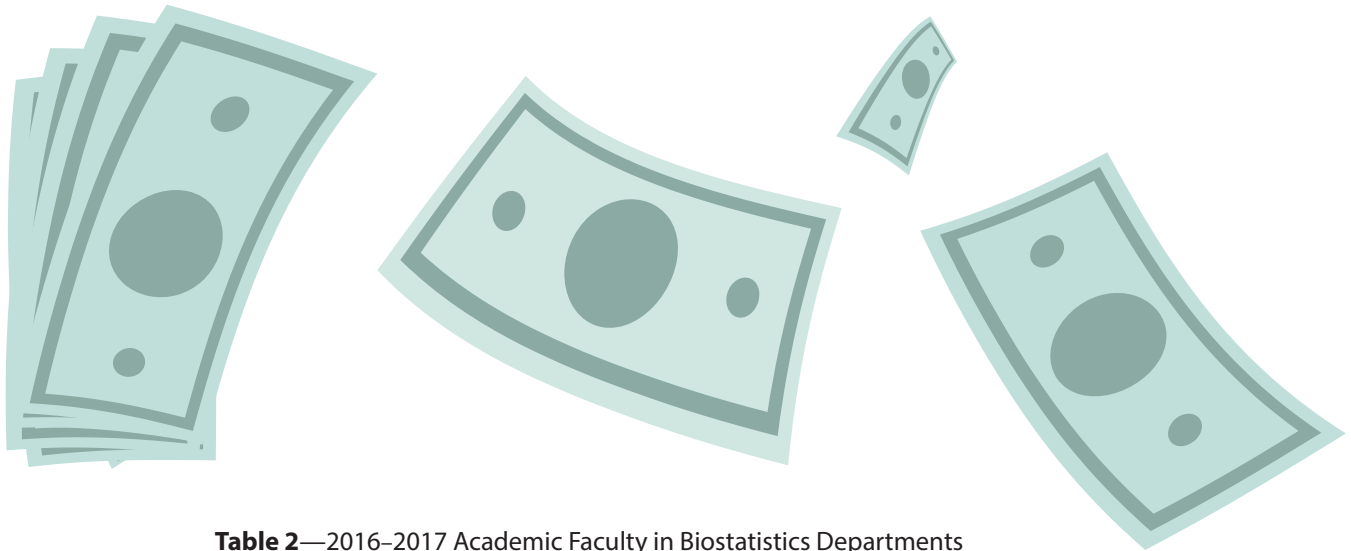
Table 1 summarizes salary information for full-time academic faculty in statistics departments by

rank and years in rank, based on a nine-month salary. Table 2 provides similar information for full-time academic faculty in biostatistics departments, but is based on a 12-month salary. Table 3 summarizes salary information on full-time academic faculty in the mathematical sciences departments by rank, based on a nine-month salary. A few cases of statistics and mathematical sciences faculty with 12-month salaries were adjusted down by a factor of one-fourth, and a few cases of biostatistics faculty with nine-month salaries were adjusted up by a factor of one-third. Tables 4, 5, and 6 provide similar percentiles for the groups in Tables 1, 2, and 3, respectively, stratified by gender. Tables 8, 9, and 10 were added this year to provide salary information by tenure status.

**Table 1**—2016–2017 Academic Faculty in Statistics Departments by Rank and Years in Rank, Based on 9-Month Salary

Rank	Years in Rank	N	1st Quartile	Median	3rd Quartile	90th Percentile
Assistant Professor	0–1	50	\$82,000	\$88,820	\$92,700	\$98,901
	2–3	42	\$82,496	\$87,125	\$93,000	\$96,200
	4–5	26	\$76,000	\$91,629	\$96,700	\$118,014
	6+	8	\$74,150	\$82,890	\$92,165	\$92,561
	All	126	\$82,000	\$88,820	\$93,030	\$105,000
Associate Professor	0–1	20	\$93,185	\$100,408	\$112,997	\$150,218
	2–3	25	\$92,513	\$102,153	\$123,000	\$139,319
	4–6	34	\$91,000	\$98,004	\$104,592	\$128,126
	7+	29	\$93,100	\$100,266	\$117,150	\$158,070
	All	108	\$91,457	\$100,071	\$109,383	\$139,319
Professor	0–2	25	\$107,000	\$113,100	\$124,600	\$171,549
	3–5	27	\$116,682	\$132,126	\$144,954	\$184,009
	6–9	22	\$120,344	\$148,597	\$185,058	\$237,060
	10–16	37	\$139,352	\$149,992	\$176,892	\$258,552
	17+	66	\$134,996	\$158,450	\$189,000	\$235,975
	All	177	\$120,528	\$144,061	\$172,274	\$234,836
Instructor	All	62	\$49,820	\$63,409	\$71,455	\$87,000
<b>All Ranks</b>	<b>All</b>	<b>473</b>	<b>\$85,000</b>	<b>\$98,378</b>	<b>\$135,000</b>	<b>\$172,274</b>





**Table 2**—2016–2017 Academic Faculty in Biostatistics Departments by Rank and Years in Rank, Based on 12-Month Salary

Rank	Years in Rank	N	1st Quartile	Median	3rd Quartile	90th Percentile
<b>Assistant Professor</b>	0–1	41	\$102,000	\$106,080	\$112,767	\$126,667
	2–3	35	\$106,362	\$110,000	\$122,467	\$131,033
	4–5	29	\$106,437	\$113,254	\$128,300	\$150,000
	6+	19	\$99,412	\$110,331	\$115,357	\$130,628
	All	124	\$102,780	\$109,078	\$121,483	\$130,909
<b>Associate Professor</b>	0–1	27	\$116,478	\$126,100	\$144,467	\$156,938
	2–3	32	\$127,585	\$137,569	\$147,477	\$155,232
	4–6	40	\$128,320	\$145,933	\$155,533	\$164,235
	7+	28	\$124,008	\$138,500	\$159,407	\$178,141
	All	127	\$123,400	\$139,416	\$151,649	\$163,636
<b>Professor</b>	0–2	28	\$174,827	\$185,001	\$197,828	\$240,000
	3–5	33	\$158,500	\$192,267	\$215,544	\$241,000
	6–9	31	\$171,700	\$197,144	\$211,819	\$228,095
	10–16	29	\$190,200	\$215,584	\$272,000	\$377,778
	17+	28	\$202,114	\$224,970	\$278,577	\$307,643
	All	149	\$175,480	\$196,895	\$228,095	\$285,438
<b>Instructor</b>	All	12	\$72,003	\$82,035	\$94,502	\$98,838
<b>All Ranks</b>	<b>All</b>	<b>412</b>	<b>\$113,072</b>	<b>\$142,627</b>	<b>\$184,630</b>	<b>\$224,400</b>



**Table 3**—2016–2017 Academic Faculty in Mathematical Sciences Departments by Rank, Based on 9-Month Salary

Rank	N	1st Quartile	Median	3rd Quartile	90th Percentile
<b>Instructor</b>	36	\$51,000	\$53,400	\$57,034	\$57,900
<b>Assistant Professor</b>	25	\$61,875	\$75,497	\$78,354	\$81,480
<b>Associate Professor</b>	35	\$70,725	\$79,693	\$95,250	\$104,000
<b>Professor</b>	53	\$93,675	\$101,880	\$118,275	\$161,500
<b>All Ranks</b>	<b>149</b>	<b>\$57,900</b>	<b>\$78,440</b>	<b>\$99,063</b>	<b>\$117,730</b>



**Table 4**—2016–2017 Academic Faculty in Statistics Departments by Rank, Years in Rank, and Gender, Based on 9-Month Salary

Rank	Years in Rank	Gender	N	1st Quartile	Median	3rd Quartile	90th Percentile
Instructor	All	Female	35	\$46,500	\$60,750	\$72,972	\$85,000
		Male	27	\$57,559	\$65,000	\$69,761	\$94,208
Assistant Professor	0–2	Female	21	\$82,000	\$85,000	\$91,008	\$92,700
		Male	46	\$83,000	\$89,687	\$92,772	\$99,000
	3+	Female	18	\$84,000	\$88,756	\$93,030	\$106,500
		Male	41	\$80,861	\$91,099	\$94,467	\$112,019
	All	Female	39	\$82,000	\$85,600	\$92,500	\$100,786
		Male	87	\$82,000	\$89,706	\$94,332	\$105,000
Associate Professor	0–2	Female	14	\$86,000	\$98,347	\$102,750	\$127,818
		Male	18	\$93,396	\$105,766	\$139,319	\$154,854
	3+	Female	22	\$91,000	\$97,990	\$102,000	\$123,000
		Male	54	\$92,203	\$100,979	\$110,259	\$132,320
	All	Female	36	\$89,996	\$97,990	\$102,148	\$127,818
		Male	72	\$92,744	\$102,126	\$117,266	\$139,319
Professor	0–6	Female	22	\$111,000	\$120,698	\$124,875	\$141,750
		Male	35	\$115,488	\$125,053	\$162,573	\$193,700
	7+	Female	11	\$144,061	\$160,362	\$200,103	\$205,000
		Male	109	\$133,358	\$152,000	\$184,462	\$240,000
	All	Female	33	\$114,988	\$124,600	\$151,416	\$200,103
		Male	144	\$123,062	\$147,283	\$178,349	\$235,975

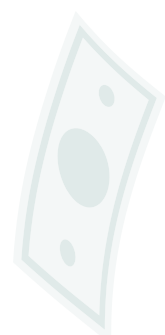
**Table 6**—2016–2017 Academic Faculty in Mathematical Sciences Departments by Rank, Years in Rank, and Gender, Based on 9-Month Salary

Rank	Gender	N	1st Quartile	Median	3rd Quartile	90th Percentile
Instructor	Female	18	\$51,884	\$54,607	\$57,399	\$59,000
	Male	18	\$51,000	\$53,162	\$55,000	\$57,123
Assistant Professor	Female	10	\$57,855	\$69,249	\$78,440	\$80,566
	Male	15	\$68,000	\$76,500	\$78,354	\$86,122
Associate Professor	Female	10	\$70,125	\$78,902	\$93,100	\$100,179
	Male	25	\$71,599	\$79,693	\$95,886	\$104,000
Professor	Female	11	\$73,398	\$95,288	\$107,584	\$110,475
	Male	42	\$93,675	\$106,392	\$130,608	\$161,500



**Table 5**—2016–2017 Academic Faculty in Biostatistics Departments by Rank, Years in Rank, and Gender, Based on 12-Month Salary

Rank	Years in Rank	Gender	N	1st Quartile	Median	3rd Quartile	90th Percentile
Instructor	All	Female	8	\$72,500	\$82,035	\$95,919	\$116,079
		Male	4	\$67,003	\$84,075	\$94,502	\$94,860
Assistant Professor	0–2	Female	24	\$98,002	\$106,102	\$111,442	\$127,000
		Male	37	\$104,000	\$109,000	\$119,770	\$127,000
	3+	Female	32	\$103,877	\$112,818	\$122,620	\$128,660
		Male	31	\$106,392	\$110,331	\$128,300	\$134,433
	All	Female	56	\$100,525	\$108,275	\$119,839	\$128,660
		Male	68	\$104,500	\$109,954	\$123,347	\$131,867
Associate Professor	0–2	Female	23	\$112,026	\$121,322	\$140,759	\$144,467
		Male	19	\$131,167	\$139,416	\$148,022	\$161,826
	3+	Female	35	\$125,360	\$145,386	\$153,750	\$163,636
		Male	50	\$128,200	\$142,308	\$159,294	\$169,352
	All	Female	58	\$116,478	\$132,246	\$150,115	\$161,567
		Male	69	\$128,305	\$141,912	\$154,212	\$168,333
Professor	0–6	Female	23	\$170,243	\$183,700	\$215,544	\$240,000
		Male	47	\$171,244	\$188,700	\$213,911	\$241,375
	7+	Female	18	\$187,212	\$206,792	\$226,440	\$278,805
		Male	61	\$192,429	\$211,819	\$260,000	\$321,300
	All	Female	41	\$173,459	\$191,372	\$223,500	\$258,400
		Male	108	\$178,305	\$197,414	\$230,301	\$296,400



**NONFACULTY DATA**

The nonfaculty data set included 149 observations from 24 institutions, with 37 at the doctoral level and 112 at the master's level. Of the 149 individuals, there were 120 from biostatistics departments, 28 from statistics departments, and one from mathematical sciences. **Table 7** provides their salary distribution, stratified by highest degree (master's or doctorate) and years since earning the highest degree.


**Table 7**—2016–2017 Academic Nonfaculty Statisticians\*, Based on 12-Month Salary

Highest Degree	Years Since Highest Degree	N	1st Quartile	Median	3rd Quartile	90th Percentile
Master's	0–2	27	\$58,122	\$64,000	\$69,323	\$70,674
	3–5	20	\$57,413	\$67,242	\$73,434	\$74,774
	6–9	24	\$65,768	\$76,406	\$80,185	\$84,088
	10–15	20	\$67,417	\$77,726	\$89,353	\$94,500
	16+	21	\$78,654	\$95,672	\$111,902	\$127,300
	All	112	\$62,743	\$71,450	\$81,711	\$96,000
Doctorate	All	37	\$68,000	\$81,906	\$95,240	\$117,000

\*Includes 120 from biostatistics, 28 from statistics, and 1 from mathematical sciences departments

**Table 8**—2016–2017 Academic Faculty in Statistics Departments by Tenure Status, Rank, and Years in Rank, Based on 9-Month Salary

**Tenured or Tenure Track**



Rank	Years in Rank	N	1st Quartile	Median	3rd Quartile	90th Percentile
Assistant Professor	0–2	50	\$85,500	\$90,150	\$93,352	\$102,000
	3+	55	\$82,650	\$91,879	\$94,467	\$112,019
	All	105	\$85,000	\$91,008	\$94,008	\$106,500
Associate Professor	0–2	28	\$93,433	\$101,801	\$132,174	\$153,075
	3–5	40	\$91,251	\$98,004	\$103,842	\$129,000
	6+	34	\$93,100	\$101,705	\$117,150	\$132,320
	All	102	\$92,513	\$100,470	\$112,692	\$139,319
Professor	0–3	31	\$111,000	\$116,682	\$132,126	\$184,009
	4–7	26	\$120,000	\$133,316	\$146,071	\$237,060
	8–14	36	\$133,895	\$148,784	\$163,459	\$205,000
	15–20	32	\$139,877	\$164,941	\$196,790	\$236,305
	21+	47	\$134,996	\$158,139	\$189,000	\$257,138
	All	172	\$121,031	\$144,787	\$176,534	\$234,836
All Ranks	All	379	\$92,182	\$109,308	\$144,954	\$185,058

**Non-Tenure Track (All Years)**

Rank	N	1st Quartile	Median	3rd Quartile	90th Percentile
Instructor	62	\$49,820	\$63,409	\$71,455	\$87,000
Assistant Professor	21	\$67,463	\$79,560	\$82,000	\$85,000
Associate Professor	6	\$72,000	\$88,265	\$91,332	\$102,750
Professor	5	\$95,863	\$117,234	\$124,600	\$160,352
All Ranks	94	\$56,069	\$67,975	\$82,000	\$94,208

**Table 10**—2016–2017 Academic Faculty in Mathematical Sciences Departments by Tenure Status and Rank, Based on 9-Month Salary

**Tenured or Tenure Track**

Rank	N	1st Quartile	Median	3rd Quartile	90th Percentile
Assistant Professor	21	\$71,571	\$77,000	\$78,440	\$81,480
Associate Professor	33	\$70,725	\$80,104	\$95,250	\$104,000
Professor	53	\$93,675	\$101,880	\$118,275	\$161,500
All Ranks	107	\$77,000	\$89,700	\$106,061	\$134,604

**Non-Tenure Track**

Rank	N	1st Quartile	Median	3rd Quartile	90th Percentile
Instructor	36	\$51,000	\$53,400	\$57,034	\$57,900
Assistant Professor	4	\$47,912	\$57,855	\$58,549	\$59,242
Associate Professor	2	\$75,637	\$75,675	\$75,713	\$75,713
All Ranks	42	\$51,000	\$53,600	\$57,399	\$59,000

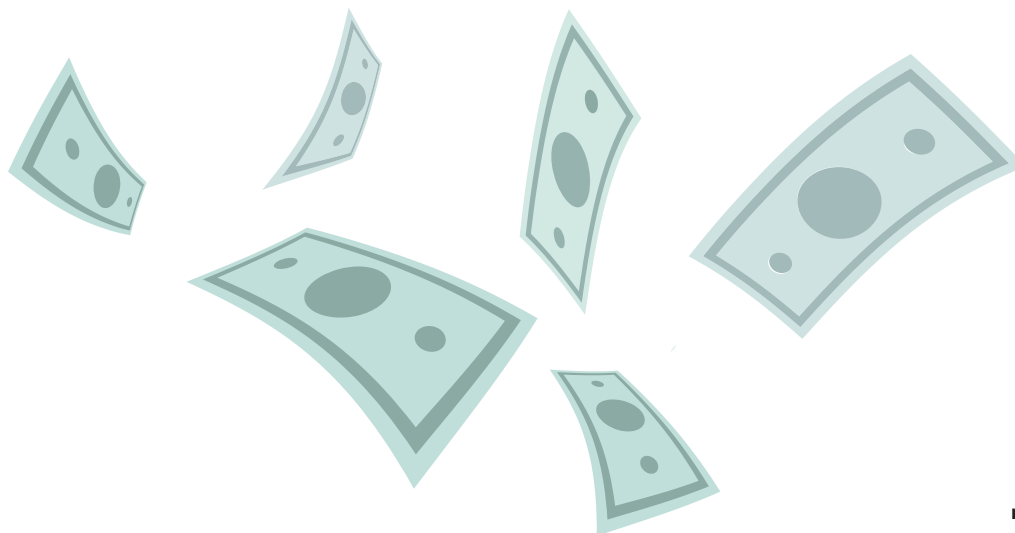
**Table 9**—2016–2017 Academic Faculty in Biostatistics Departments by Tenure Status, Rank, and Years in Rank, Based on 12-Month Salary

**Tenured or Tenure Track**

Rank	Years in Rank	N	1st Quartile	Median	3rd Quartile	90th Percentile
Assistant Professor	0–2	33	\$104,000	\$107,120	\$115,000	\$126,667
	3+	26	\$107,371	\$113,553	\$131,033	\$150,000
	All	59	\$105,698	\$109,908	\$124,028	\$131,867
Associate Professor	0–2	17	\$122,000	\$142,800	\$147,700	\$156,938
	3+	41	\$128,335	\$147,000	\$161,500	\$164,776
	All	58	\$128,200	\$145,217	\$154,212	\$164,776
Professor	0–3	26	\$177,760	\$188,617	\$229,500	\$241,375
	4–7	25	\$185,100	\$198,667	\$219,300	\$270,776
	8–14	27	\$194,713	\$215,003	\$265,110	\$377,778
	15+	27	\$195,697	\$231,102	\$285,438	\$323,813
	All	105	\$187,212	\$207,938	\$241,375	\$298,556
All Ranks	All	222	\$124,028	\$159,428	\$201,500	\$258,595

**Non-Tenure Track**

Rank	Years in Rank	N	1st Quartile	Median	3rd Quartile	90th Percentile
Instructor	All	12	\$72,003	\$82,035	\$94,502	\$98,838
Assistant Professor	0–2	28	\$96,940	\$107,625	\$116,725	\$132,707
	3+	37	\$99,412	\$110,331	\$120,665	\$128,660
	All	65	\$99,004	\$108,400	\$118,999	\$128,660
Associate Professor	0–2	25	\$113,920	\$126,100	\$139,416	\$143,393
	3+	44	\$124,988	\$137,654	\$152,943	\$163,693
	All	69	\$121,647	\$131,167	\$147,950	\$162,035
Professor	0–5	18	\$154,750	\$174,470	\$191,933	\$215,544
	6+	26	\$163,047	\$178,800	\$208,530	\$223,500
	All	44	\$159,700	\$176,540	\$203,265	\$222,338
All Ranks	All	190	\$107,594	\$126,329	\$158,050	\$185,753



# Active Learning Focus of CBMS Joint Statement

Donna LaLonde, ASA, and Mark Daniel Ward, Purdue University

Most of us learn by doing. An undergraduate describing his experience at the ASA DataFest said, “On Saturday afternoon, after 24 hours of working, we found all the models we tried failed miserably. But we didn’t give up and brainstormed and discussed our problems with the VIP consultants.” Wouldn’t it be wonderful if all undergraduates expressed similar sentiments about their mathematics and statistics classes?

A joint statement, *Active Learning in Postsecondary Mathematics* ([www.cbmsweb.org/Statements/Active\\_Learning\\_Statement.pdf](http://www.cbmsweb.org/Statements/Active_Learning_Statement.pdf)), released in July of 2016 by the Conference Board of the Mathematical Sciences (CBMS), calls on the mathematics and statistics communities to make a commitment to create classroom learning environments that encourage students to “try, fail, and not give up.” Donna LaLonde of the ASA and Mark Daniel Ward of Purdue University represented the ASA on the writing team led by Benjamin Braun, associate professor in the department of mathematics at the University of Kentucky.

The statement was signed by all the presidents of the CBMS member organizations and offers this recommendation:

In recognition of this, we call on institutions of higher education, mathematics departments and the mathematics faculty, public policy makers, and funding agencies to invest time and resources to ensure that effective active learning is incorporated into post-secondary mathematics classrooms.

At Purdue, Ward uses active learning in his courses on probability and data analysis, and he does not foresee ever returning to lectures in these courses.

In the probability course, the 40 students work in 10 teams of four students each. Students are randomly assigned to their groups every day. At the beginning of each class, Ward provides a set of questions for the students to work on during the assigned class time. He walks around the room talking to the students individually about the assignments. The class has no homework. Of course, it is advisable for the students to spend time learning in between classes. They have more than 200 videos available, and they have many hundreds of questions from previous semesters available, with solutions included.

Since the students choose how they learn the material, and since the focus of the course is on their problem-solving ability, they take ownership of the learning process. This bolsters their sense of comfort and accomplishment in the course, and they seem to enjoy the course more as a result. Since the entire semester is spent covering problems, their level of learning is deeper and more extensive, as compared to a lecture-based course.

In the data analysis course, the 21 students work in seven teams of three students each. The students work in different groups for each project, but the assignment of students to groups is not completely random. It uses a Kirkman triple system, so that each student is paired with two new people in each project, and therefore each student gets to work with each of the other 20 students exactly one time during the semester. Such an assignment of students is perhaps comparable to the real world, in which students cannot just work with their closest friends on every assignment. The students also cannot routinely fall into the role of always being the one who is in charge of the work with her/his peers, nor can any student always be a follower.

The entire course is project based, with the students working on each project for roughly 1.5 weeks at a time. Some of the projects are crafted to introduce students to new concepts, and other projects are designed to enable students to explore their own interests in data sets. All the projects tend to use large data sets, so the students cannot simply work in a spreadsheet or another traditional tool.

As in the probability course, Ward spends the class time walking around the room, discussing issues with individuals and teams as they work on their projects. They usually put music (selected by the students) on the overhead class speakers during class, so the atmosphere is relaxed and conducive to learning in the way they might work if they were creating their own learning environment.

In their guest editorial to the recent special issue of *The American Statistician* dedicated to statistics and the undergraduate curriculum (volume 69, issue 4), Jo Hardin and Nick Horton posed the question, “How do we ensure that students have flexible problem-solving skills to tackle future problems using data with techniques and technology that may not yet exist?” Ward and LaLonde think creating active learning environments is part of the answer. ■

## MORE ONLINE

To review the active learning statement, download the PDF at [www.cbmsweb.org/Statements/Active\\_Learning\\_Statement.pdf](http://www.cbmsweb.org/Statements/Active_Learning_Statement.pdf).

# ASA Issues Statement in Response to Trump's Order on Visas, Immigration

In response to President Trump's executive order on visas and immigration, which among other measures blocks citizens from seven Muslim-majority countries from entering the United States for 90 days, ASA Executive Director Ron Wasserstein and the chair of the ASA's Committee on International Relations in Statistics, Geert Molenberghs, issued the following statement on the ASA's behalf:

In light of the recent executive order on visas and immigration, we are compelled to speak out in support of our international members. Science benefits from the free expression and exchange of ideas. As the oldest scientific society in the United States and the world's largest professional society for statisticians, the ASA has an overarching responsibility to support rigorous and robust science. Our world relies on data and statistical thinking to drive discovery, which thrives from the contributions of a global community of scientists, researchers, and students. A flourishing scientific culture, in turn, benefits our nation's economic prosperity and security.

One out of nine ASA members resides outside the U.S. In addition, one out of three members are students, many of whom are from other countries. Our nation welcomes scientists and researchers of all disciplines from beyond our borders each year to present data and discoveries, lead discussions, and collaborate on multidisciplinary initiatives all in an effort to advance knowledge and understanding. While respecting the need for national security, we call for an approach that does not undermine the U.S.'s standing as a preeminent scientific leader, driver of innovation, and facilitator of intellectual inquiry and academic excellence.

The ASA is dedicated to ensuring that all participants in ASA activities enjoy an environment free from unlawful discrimination, harassment, and retaliation. The association is in the process of reaching out to its members in the affected

## What Others Are Saying

The sentiments expressed in the ASA statement echo the statements of many other scientific societies, a small selection of which follows:

**AAAS CEO Responds to Trump Immigration and Visa Order,**  
<http://bit.ly/2krd94d>

**American Mathematical Society Board of Trustees Opposes Executive Order on Immigration,**  
[www.ams.org/news?news\\_id=3305](http://www.ams.org/news?news_id=3305)

**Statement of the American Sociological Association Concerning the New Administration's Recent and Future Activities,**  
<http://bit.ly/2kLzeOT>

**MORE ONLINE**  
In addition to this statement, the ASA signed a multi-society letter (see <http://bit.ly/2jx4HEe>) urging the administration to rescind the executive order.

countries to offer its support and assistance, and will extend complimentary membership to non-member statisticians in the affected countries, as well.

Through these actions, the ASA affirms its commitment to assist statisticians affected by the executive order and will work with the broader scientific community to strive for a balanced approach.

The ASA is exploring other ways to help and welcomes member input. Specifically, the ASA asks members to send stories of how the ban affects their work and lives to [publicrelations@amstat.org](mailto:publicrelations@amstat.org). With permission, the ASA will compile and share those stories to draw attention to the impact on the statistical community. For members who already shared such an impact on social media, the ASA requests their assistance in sending those URLs. Additionally, the ASA encourages academic members to consider signing the petition, "Academics Against Immigration Executive Order," at <https://notoimmigrationban.com>. ■

STATtr@k

# View from a Woman Statistician and Data Scientist in the Era of Big Data



**Kelly H. Zou** is senior director and analytic science lead, Real-World Data and Analytics, Global Health and Value, at Pfizer Inc. She is an elected fellow of the American Statistical Association and an Accredited Professional Statistician. Her research interests include health care policy, Big Data, and outcomes research. She has written more than 130 professional articles and four books.

## How or why did you choose statistics as a career path / area of study?

**Zou:** I took a probability course as an undergraduate student, with a major in mathematics and a minor in physics. I always had the aspiration to study astronomy, astrophysics, or signal process. The last one turned out to be my PhD thesis topic.

In my high school, I received a prize following an astronomy contest throughout Shanghai. In my undergraduate school, I received a biography on Albert Einstein as an award from the physics department. I worked with data in physics laboratory experiments as a lab assistant and equations in the math laboratory as a licensed tutor.

My mathematics adviser noted I was intrigued by probability theory and one day asked me if I had ever thought of statistics. The rest was history! I found my calling and destiny as a PhD student in statistics in my junior year in college.

I was fortunate to have the most wonderful doctoral thesis adviser, W. Jackson Hall at the University of Rochester, through whom I became an academic “descendent” of Johann Carl Friedrich Gauss. I also had joint post-doctoral advisers Sharon-Lise Normand and Clare M.C. Tempamy at Harvard Medical School.

I would say both mathematics and physics led me to statistics and beyond. Luckily, these disciplines have laid a solid theoretical and methodological foundation for sound statistical practice and applications.

Please see the interview I did in *Amstat News* about my journey in the fields of statistical and data science at <http://magazine.amstat.org/blog/2016/08/01/kzou-aug16>.

## What inspires you about statistics and data science?

**Zou:** Bhoopathi Rapolu wrote in *The Guardian*, “A data scientist takes raw data and marries it with analysis to make it accessible and more valuable for an organization. To do this, they need a unique blend of skills—a solid grounding in maths and algorithms and a good understanding of human behaviors, as well as knowledge of the industry they’re working in, to put their findings into context. From here, they

can unlock insights from the data sets and start to identify trends.”

To put it bluntly, what fascinates me the most are the following aspects:

- What you see is what you get (in an empirical frequentist sense)
- What assumptions are appropriate under what circumstances (in a Bayesian sense)

My doctoral research was on semiparametric methods associated with the assessment and validation of classification accuracy, while my post-doctoral research was on observational data analysis. Thus, they have provided some sophisticated and practical tools for me to be a statistician, a biomedical engineer, a quantitative analyst, and data scientist, however you name it. However, the tools may evolve, but the inquisitive nature, mathematical principals, and coding skills will take each of these roles far along a career path.

I also enjoy chairing the Statistical Partnerships Among Academe, Industry, and Government (SPAIG) Committee of the American Statistical Association, because the statistical profession is fertile for collaborations and interdisciplinary research. I am also interested in the policy aspect and quantitative data analysis and comparative effectiveness research as chair-elect of the ASA’s Health Policy Statistics Section.

## What challenges do women face in the statistics and data science professions?

**Zou:** I, along with other members of the Joint Committee on the Status of Women (JCSW) at Harvard Medical School and Harvard School of Dental Medicine, published an article about the gender differences in research grant applications and funding outcomes for medical school faculty. The JCSW observed and found the following: “Gender disparity in grant funding is largely explained by gender disparities in academic rank. Controlling for rank, women and men were equally successful in acquiring grants. However, gender differences in grant application behavior at lower academic ranks



Photo by Candice Liang

Kelly Zou presents a keynote titled “Data Science, Career Path, and Inspiring Dreams!” at the 2016 Alumni Summit held at Bausch & Lomb Hall. The summit was sponsored by the Chinese Students and Scholars Association at the University of Rochester.

also contribute to gender disparity in grant funding for medical science.”

In terms of mathematically oriented professions, women are particularly excellent in visualizations, analyses, and interpretations. For female students to become part of a future generation of statisticians and data scientists, providing early interests and scholarships in science, technology, engineering, and mathematics (STEM) programs such as those from the National Science Foundation (NSF), is paramount. Furthermore, tips and opportunities for scientific internships are also critical for them to gain real-world hands-on experience, beneficial mentorship, and career development.

Besides, collaborative projects in the era of Big Data may also let women data scientists shine with their talents. The SPAIG Committee, for example, recognizes outstanding statistical partnerships with the annual SPAIG Award.

### What is the most exciting aspect of your job, and what does a typical day in your job involve?

**Zou:** Currently, I am senior director and analytic science lead, Real-World Data and Analytics (RWDnA), Global Health and Value, at Pfizer Inc. I was previously statistics lead, Statistical Center for Outcomes, Real-World, and Aggregate Data (SCORAD), in the same company. I have also been

associate professor at Harvard Medical School and associate director at Barclays Capital.

My detailed experience is provided on the ASA website (<http://bit.ly/2loXBLR>). The common theme has always been the four Vs of Big Data: Veracity (uncertainty of data), Variety (different forms of data), Velocity (analysis of streaming data), and Volume (scale of data). For example, I have worked on the problems of two-dimensional pixel or three-dimensional voxel image data, financial tick data, electronic health records, medical and insurance claims, and international survey questionnaires such as patient-reported outcomes. Thus, they have provided many unique and common challenges, which require different analytic tools and programs. There is no particular typical day per se when the teams are dealing with these four Vs.

In the context of my daily work, the term “real-world data” (RWD) comes up frequently. It means “data used for decision making that are not collected in conventional randomized control trials.” Such data can be Big Data with the characteristics of the four Vs.

My days are filled with being part of teams and interacting with talented team members who are analytic scientists, data scientists, statisticians, and programmers. I also interact with cross-functional stakeholders such as outcomes researchers, medical and clinical colleagues, epidemiologists, payer

insight analysts, and liaisons and collaborators with other organizations.

There are not only face-to-face meetings, but also web-based communications with colleagues from other parts of the world, as well as within the United States. Thus, communication skills are important to possess to effectively discuss with team members rapid queries of RWD, minor and major analytic needs with various levels of complexity, peer-reviewed publications based on non-interventional observational studies and pragmatic trials, and regulatory interactions.

Besides multiple product areas, I also cover the Asia-Pacific region and China as a large country, which requires understanding country-specific policies on patient privacy protection, data access, storage, and regulatory landscapes. Traveling to collaborate and present on RWD-based topics is also required from time to time.

Recently, for example, I have been fortunate enough to take on international assignments to China, Hong Kong, Japan, Malaysia, and Taiwan. Being a native speaker of Chinese and being educated in the United States certainly give me helpful cultural perspectives. When being part of the exciting and cutting-edge Big Data and RWD development around the world, it is helpful to develop communication skills, respect different cultures, understand different country's requirements and challenges, and gain insights in the relevant context.

### What would you say to girls in school/college who may be considering statistics or data science as a study option/career choice?

**Zou:** Nowadays, a statistician or a data scientist may have a wide background and sharp mind and be a keen observer. Although these are necessary characteristics and elements for success, it is helpful to also master “hard” tool sets such as quantitative training, mathematical training, and computer language and coding skills. On the other hand, “soft” skills such as communicating, identifying what the customer wants, and translating it into quantifiable and actionable results are also keys to a successful career.

The girls in school or college may embrace and strengthen learning opportunities in S-STEM. They may have the attitude that the sky is the limit in terms of their future careers in data science when analyzing and dealing with the four Vs. After all, it is not surprising at all that *Forbes* has listed data scientist and statistician as the top two best jobs in 2016, respectively. On the other

hand, it is also important not to rush into the field before weighing your options carefully.

### Do you think the perception of statistics or data science as a male-dominated career can be changed, and if so, how?

**Zou:** There are many women in statistics. For example, the ASA database contained records for 18,944 members in September 2015, 34.6% of whom were women. Compared to prior years of data when the percentage of women was 32% in 2012 and 31.5% in 2010, we see a slight upward trend in the share of women in the ASA membership.

Then, what about women in statistics and data science? An insightful article published in *Wire* explained why women appear to be invisible in data science. “The problem with data science in academia is that’s not where the magic happens. It happens at the Googles, Facebooks, Microsofts, and IBMs, as well as startups like Dstillery. This is where the richest data and most interesting problems are—and it’s not accessible to most academics. In fact, for them, getting access requires heavy networking.”

Hence, in my view, women statisticians and data scientists may consider the following advice:

- Be imaginative, inquisitive, and creative for the four Vs of data
- Be savvy and master communication skills
- Challenge the norm, but be mindful of the underlying mechanisms and methodology
- Expand horizons to include subject-matter expertise areas
- Gain hands-on experience in hardware and software development
- Network with others in the quantitative professions
- Participate in internships and practical training
- Possess a zest to learn and think beyond the massive data and their surfaces
- Seek excellent career mentors and sponsors
- Understand the policies and challenges for data access and analysis

Finally, there is no “one size fits all” when becoming a successful data scientist, but these useful skill sets may set the candidates apart and make them shine, regardless of gender. ■

#### MORE ONLINE

Zou is among those interviewed in “Meet Inspirational Women in Statistics & Data Science.” Read what she has to say at <http://olabout.wiley.com/WileyCDA/Section/id-829240.html>.



## CONSULTANT'S CORNER

## A New Column for Consultants

What does a publications officer of a section do? Admittedly, there are differences in sections, and while most sections have a newsletter, many sections also have a newsletter editor in addition to a publication's officer. This is true for the Section on Statistical Consulting.

So, when I was fortunate to be elected the publications officer of the Statistical Consulting Section, I was not really sure what the job entailed. The Section's charter states the following:

The publication's officer shall coordinate paper and electronic publications associated with the section including, but not limited to, section columns in *Amstat News*, proceedings of meetings, and other presentations, but excluding the section newsletter. . . . When requested by the editors, the publications officer shall assist in soliciting, reading, and editing articles on statistical consulting for publication in the association's journals.

Sure enough, the institutional memory of the position seemed to allow a lot of leeway in my interpretation of the job—and anyone who knows me, knows I have a lot more faith in the spirit, if not the letter, of the law. So I thought if the function of the newsletter was to communicate the “goings on” of the section to the section, then the publications officer should be responsible for communicating those “goings on” to the greater ASA. So, what “goings on” would we communicate with the greater ASA and how?

Since ASA Connect launched, it has been clear to me that some sections are very active and some not so much. The Section on Statistical Consulting has an incredibly active discussion board; it was primarily that section that led me to ask how to change my settings to a daily digest, rather than real time. The discussions range from starting a consulting business to whether insurance for that business is a good idea, from how best to predict which clients might have projects that take much longer than the client or even the consultant might expect to advantages and disadvantages of billing at intervals or at project's end. There was a very

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We are excited to launch this idea next month, with articles ranging from what starting a consulting business would entail to issues that could be taught in a consulting course to other issues that statistical consultants might face.

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active debate when the definitions of consultants and collaborators were contrasted. Needless to say, I believe there are many “goings on” of the section that might appeal to the greater ASA audience.

I do not have a master's degree, but I truly enjoy reading the Master's Notebook. I was curious to see if there could be a corner of *Amstat News* concerned with “all things consulting,” akin to the Master's Notebook. Chuck Kincaid, the current chair of the section, and I pitched the idea, and we got a go ahead to try it! So, be on the lookout for the Consultant's Corner!

We are excited to launch this idea next month, with articles ranging from what starting a consulting business would entail to issues that could be taught in a consulting course to other issues that statistical consultants might face. My guess is there are many great ideas for best practices of consulting, as well as many great stories about consults that have made an impact on the world.

If you have ideas for articles (questions you would like answered about consulting practice or your own stories), please forward them to me at [m-kwasny@northwestern.edu](mailto:m-kwasny@northwestern.edu). I will happily liaison between the readers and the section so this corner may be a great way to encourage, enlighten, and entertain. ■



Mary Kwasny is an associate professor in the department of preventive medicine and an active member of the Biostatistics Collaboration Center at Northwestern University, Feinberg School of Medicine. She has been enjoying the art of statistical consulting and collaboration for more than 20 years in academic medical centers and external non-profits.

## PASTIMES OF STATISTICIANS



Photos by Amy Nussbaum  
Birthplaces of President John Adams (foreground) and President John Quincy Adams (background), in Braintree, Massachusetts



# What Do Statisticians Like to Do When They Are Not Being Statisticians?



Nussbaum

## Who are you, and what is your statistics position?

My name is Amy Nussbaum and I am the science policy fellow at the American Statistical Association.

## Tell us about what you like to do for fun when you are not being a statistician.

I'm an amateur historian, specializing in United States presidents. During high school, my mom and I stopped at Abraham Lincoln's birthplace during a road trip—it is an incredibly peaceful place and we really enjoyed our time there. On various trips over the years, I saw many other birthplaces advertised on the side of the road or near my final destination and I started making a point to visit these

sites. Ultimately, I'm trying to visit each and every birthplace .... I'm lucky to have friends and family who indulge my hobby! So far, I've been to 13 birthplaces in nine states (unfortunately, none so far in Virginia, even though the ASA is headquartered in Alexandria and more presidents have been born here than in any other state). When I'm not traveling to the next site, I've been trying to read a biography of each man, as well.

## What drew you to this hobby, and what keeps you interested?

Like many other ASA members, I love to learn. This is a great way to take a break from numbers every so often and educate myself on a new topic.



President Lyndon B. Johnson's birthplace, near Stonewall, Texas



President Bill Clinton's first home in Hope, Arkansas

I also feel like it encourages me to visit places I otherwise wouldn't have seen, especially those in rural areas. Most are commemorated in some way, and many are in beautiful locations and offer tours through the houses.

At first, I thought that the birthplaces might start to look similar after a while, but this endeavor is constantly surprising! By no means do U.S. presidents constitute a random sample of our shared history, but it's definitely more representative than I thought. I've been to New York, the biggest city in the U.S. (Theodore Roosevelt), and I've been to towns so tiny I accidentally drove through them before locating my destination (Ronald Reagan). Some presidents are born into high society (such as Howard Taft), and some are born to very poor families (like Andrew Jackson).

There are also quite a few connections with statistics—it always surprises me when one pops up! For example, George Washington ran the first agricultural survey of the United States by writing

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This is a great way to  
take a break from numbers  
every so often and educate  
myself on a new topic.

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Do you have a hobby you would like to share? If so, contact Susan Spruill at [sspruill@appstatsconsulting.com](mailto:sspruill@appstatsconsulting.com) or Megan Murphy at [megan@mstat.org](mailto:megan@mstat.org).

letters to 40 neighbors and asking about their crop yields. James Madison was one of the first to add questions to the decennial census, since he recognized the importance of data on the education and occupations of U.S. residents. And, of course, who can forget the lessons pollsters learned during the election of Harry S. Truman in 1948? ■

# ASA Statistics Poster Competition for Grades K–12

## Prizes

**First Prize** - \$300, a plaque, and a plaque for the school

**Second Prize** - \$200 and a plaque

**Third Prize** - \$100 and a plaque

**Honorable Mention** - A plaque

If the submission is a collaborative effort, the prize money will be divided equally.

Also, first-place winners in grades 4–12 will receive Texas Instruments graphing calculators. First-place winners in grades 4–6 and their advisers will receive TI-73 Explorer Graphing Calculators. The winners in grades 7–12 and their advisers will receive TI-84 Plus Silver Edition Graphing Calculators.

The ASA/NCTM Joint Committee on Curriculum in Statistics and Probability and the ASA's education department encourage students and their advisers to participate in its annual poster competition.

What is a statistical poster? A statistical poster is a display containing two or more related graphics that summarize a set of data, look at the data from different points of view, and answer specific questions about the data.

## Rules

Posters must measure between 18 and 24 inches high and 24 and 30 inches wide.

Any weight of paper is permitted.

The best way to send the poster is flat, between taped sheets of cardboard. Do not send posters rolled in a tube. Between 200 and 400 posters are entered, so send posters using a method that lends itself to easy opening with a razor. No extra papers, "peanuts," or other non-Earth-friendly packing materials should be included.

Be sure posters are not wrapped so securely that opening them becomes a challenge. Do not use duct tape or large amounts of tape.

Any layers of paper on posters must be affixed securely.

Posters must be the original design and creation of the entrant(s).

Computer graphics may be used.

Subject matter is the choice of the participant(s) or their classmates.

An example of the original data and brief descriptions of the method of collection and purpose of the experiment must be taped securely to the back of the poster. (Cite references for published data.)

In submitting a poster, students agree that the poster may be displayed at the ASA's Joint Statistical Meetings, featured in its publications, and included on its website.

All entries become the property of the ASA and cannot be returned.

Only first-, second-, and third-place winners and honorable mentions will be notified personally. The ASA website will announce winners in August.

Students may work individually or in teams. For those in the K–3 category, there is no restriction on the size of the team. For other categories, the maximum number of students per team is four. For teams with members from different grade levels, the highest grade determines the entry category.

## Evaluation

Teachers and statisticians, whose decisions are final, will judge the posters on the following:

- Overall impact of the display for eye-catching appeal, visual attractiveness, and its ability to draw the viewer to investigate the individual graphs (more than one graph is required for all but the K–3 category)
- Clarity of the message's demonstration of important relationships and patterns, obvious conclusions, and ability to stand alone, even without the explanatory paragraph on the back
- Appropriateness of the graphics for the data
- Creativity

There is no entry fee, but your poster must be postmarked by April 1 and sent to Poster Competition, 732 North Washington Street, Alexandria, VA 22314-1943.

For details, visit the ASA's website at [www.amstat.org/K12-poster-competition](http://www.amstat.org/K12-poster-competition). ■

**MORE ONLINE**  
To download the entry form and view a sample of the certificate of participation, visit [www.amstat.org/asa/education/ASA-Statistics-Poster-Competition-for-Grades-K-12.aspx](http://www.amstat.org/asa/education/ASA-Statistics-Poster-Competition-for-Grades-K-12.aspx).

The North Carolina State University College of Sciences has named **Leonard “Len” Stefanski** the first R.A. Fisher Distinguished Professor in Statistics. The professorship was made possible through the financial contributions of dozens of NC State alumni and friends.

Stefanski, a prominent statistician well known for his work in measurement error modeling, joined the NC State faculty in 1986. He has also made important contributions in variable selection, biostatistics, generalized linear models, and environmental statistics. He has served as interim head

of the department of statistics since 2016.

“The alumni and friends who pooled resources to create this professorship have made a profound impact on our college,” said Bill Ditto, dean of the college of sciences. “Through their philanthropy, we are able to recruit and retain prominent statisticians like Len Stefanski.”

Stefanski, along with NC State PhD student John Cook, developed SIMEX, a widely used Monte Carlo method for the analysis of data measured with error. He is also one of the authors of the seminal textbook *Measurement Error*

*in Nonlinear Models*. He has authored more than 100 scientific publications and delivered or submitted more than 90 invited research presentations and papers.

Stefanski is a previous winner of the department’s Cavell Brownie Mentoring Award, which honored his outstanding mentoring of students and junior faculty, and the D.D. Mason Department Award, which recognized his many years of exemplary service to statistics at NC State. He is also an elected fellow of the American Statistical Association.

Read more about the award and Stefanski at <http://bit.ly/2krkXCR>. ■

## AAAS Fellows

In October, the American Association for the Advancement of Science (AAAS) council elected 391 members as fellows. The new fellows received a certificate and blue and gold rosette as a symbol of their distinguished accomplishments.

The ASA members elected as fellows to AAAS include the following:

- **Douglas L. Anderton**  
*University of South Carolina*
- **Richard T. Carson**  
*University of California, San Diego*
- **Alicia L. Carriquiry**  
*Iowa State University*
- **Michael R. Kosorok**  
*The University of North Carolina at Chapel Hill*
- **George Ostrouchov**  
*Oak Ridge National Laboratory*
- **Jane F. Pendergast**  
*Duke University Medical Center*
- **Stanley Presser**  
*University of Maryland, College Park*
- **Dale L. Preston**  
*HiroSoft International Corporation*
- **Francisco J. Samaniego**  
*University of California, Davis*
- **Yu Shyr**  
*Vanderbilt University Medical Center*
- **Hal S. Stern**  
*University of California, Irvine*
- **Anastasios A. Tsiatis**  
*North Carolina State University*
- **Xiao-Hua (Andrew) Zhou**  
*University of Washington/Peking University (China)*
- **Lixing Zhu**  
*Hong Kong Baptist University/Beijing Normal University*

The entire list of new fellows can be viewed at [www.aaas.org/2016-fellows](http://www.aaas.org/2016-fellows).

### Julius Shiskin Award

The Washington Statistical Society, National Association for Business Economics, and Business and Economics Statistics Section of the American Statistical Association are seeking nominations for the 2017 Julius Shiskin Memorial Award for Economic Statistics.

This annual award is given in recognition of unusually original and important contributions to the development of economic statistics or the use of statistics in interpreting the economy. Contributions can be to the development of new statistical measures, statistical research, use

### MORE INFORMATION

For more information about the award, contact Thomas Evans, Julius Shiskin Award committee secretary, at [evans.thomas@bls.gov](mailto:evans.thomas@bls.gov) or (202) 691-6354.

of economic statistics to analyze and interpret economic activity, development of statistical tools, management of statistical programs, or application of data production techniques.

Individuals in the public or private sector from any country can be nominated. Completed nominations must be received

by March 21. The award will be presented with an honorarium of \$1,000. A nomination form and list of previous recipients are available at <http://bit.ly/2kYqJ2a>.

This award was established in 1979 to honor Julius Shiskin, who at the time of his death in 1978 was commissioner of the Bureau of Labor Statistics (BLS). He earlier served as chief statistician at the Office of Management and Budget (OMB) and assistant director at the U.S. Census Bureau. At the Census Bureau, he was instrumental in developing an electronic computer method for seasonal adjustment. At OMB, he developed the policies that

## Do You Want Power?

### Adaptive Tests of Significance:

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- have little loss in power if the errors are normally distributed.
- maintain their level of significance ( $\alpha$ ).

To learn more about adaptive testing read:

### Adaptive Tests of Significance Using Permutations of Residuals with R and SAS

by Thomas W. O'Gorman, Wiley (2012).

*Adaptive tests can be used to test any fixed effect in a linear model. This includes two-sample tests, tests for main and interaction effects, tests for slopes in regression models, paired data tests, and tests for treatment effects in multicenter and cross-over trials.*

The book includes:  
R functions,  
SAS macros, and  
many examples.

Available at  
[www.wiley.com](http://www.wiley.com)  
and at many  
libraries.

If you have questions about this approach contact Tom O'Gorman at [twogorman@gmail.com](mailto:twogorman@gmail.com)

still govern the release of key economic indicators, and, at BLS, he directed the comprehensive revision of the Consumer Price Index (CPI), which included a new CPI for all urban consumers.

The 2016 award recipient was John Abowd, Edmund Ezra Day Professor at Cornell University and associate director for research and methodology and chief scientist at the Census Bureau, for designing and implementing disclosure avoidance techniques that enable federal statistical agencies to greatly expand the availability of their data while preserving respondents' confi-

dentiality and for his leadership at Cornell providing access to these data over the internet. ■

### Jerome Sacks Award

The National Institute of Statistical Sciences (NISS) is seeking nominations for the 2017 Jerome Sacks Award for Outstanding Cross-Disciplinary Research. The prize recognizes sustained, high-quality cross-disciplinary research involving the statistical sciences.

An award of \$1,000 will be presented during the NISS/Statistical and Applied Mathematical Sciences Institute reception at the Joint Statistical

Meetings in Baltimore, July 29 – August 3, 2017.

To nominate an individual, submit as one PDF document the following information to [sacksaward2017@niss.org](mailto:sacksaward2017@niss.org) by May 1:

1. Nomination letter (maximum two pages)
2. Supporting letters from two individuals (other than nominator)
3. The nominee's CV

For more information and to see the list of previous winners, visit <http://bitly/2k8LPqr>. ■



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# sectionnews

## Biometrics

*Edited by Zheyu Wang, Biometrics Section Publications Officer*

The Biometrics Section is looking for volunteers to help chair a session at this year's JSM. Chairing a session is an important responsibility and a great way to meet your colleagues. If you are interested, contact our section's 2017 Program Chair, Barbara Engelhardt, at [bee@princeton.edu](mailto:bee@princeton.edu).

### Interested in Getting More Involved?

Want to get more involved in the Biometrics Section? Interested in contributing articles to the Biometrics Section newsletter? Contact the section's publication officer, Zheyu Wang, at [wangzy@jhu.edu](mailto:wangzy@jhu.edu).

### Strategic Initiatives Grant Awardees

The Biometrics Section is pleased to announce that the following three proposals have been funded as part of the section's strategic initiative, "Developing the Next Generation of Biostatisticians":

- **Stacia DeSantis**, The University of Texas School of Public Health, "Developing the Next Generation of Biostatisticians: Leveraging NIH Training Grant Recipients to Perform Outreach in Texas"
- **Lillian Prince**, Kent State University, "Biostatistics and Research Awareness Initiatives Network, Inc. (BRAIN)"
- **Kristen McQuerry**, University of Kentucky, "Inspiring the Next-Generation Biostatistician"

### 2017 Award Winners

The David P. Byar Young Investigator Award is given annually to a new researcher in the Biometrics Section who presents an original manuscript at the Joint Statistical Meetings. The award commemorates David Byar, a renowned biostatistician who made significant contributions to the development and application of statistical methods during his career at the National Cancer Institute. In addition, the section gives travel awards. This year, we had 52 submissions to the paper competition. We are pleased to announce the following recipients:

*David P. Byar Young Investigator Award*

**Edward Kennedy**, Carnegie Mellon University, "Robust Estimation and Inference for the Local Instrumental Variable Curve"

*Travel Awards*

**Joseph Antonelli**, Harvard T.H. Chan School of Public Health, "Double Robust Matching Estimators for High-Dimensional Confounding Adjustment"

**Qingpo Cai**, Emory University, "Bayesian Variable Selection Over Large-Scale Networks via the Thresholded Graph Laplacian Gaussian Prior with Application to Genomics"

**Anqi Cheng**, University of Washington, "Monotone Distribution Function Estimation in Randomized Trials with Noncompliance"

**Wenting Cheng**, University of Michigan, "Informing a Risk Prediction Model for Binary Outcomes with External Coefficient Information"

**Chanmin Kim**, Harvard T.H. Chan School of Public Health,

"Bayesian Methods for Multiple Mediators: Relating Principal Stratification and Causal Mediation in the Analysis of Power Plant Emission Controls"

**Shelley H. Liu**, Harvard T.H. Chan School of Public Health, "Lagged Kernel Machine Regression for Identifying Time Windows of Susceptibility to Exposures of Complex Metal Mixtures"

**Krithika Suresh**, University of Michigan, "Comparison of Joint Modeling and Landmarking for Dynamic Prediction Under an Illness-Death Model"

**Guan Yu**, State University of New York at Buffalo, "Optimal Sparse Linear Prediction for Block-Missing Multi-Modality Data Without Imputation"

**Xiang Zhan**, Fred Hutchinson Cancer Research Center, "A Fast Small-Sample Kernel Independence Test with Application to Microbiome Association Studies" ■

### Quality and Productivity

In 2017, the ASA Q&P Section's Quality and Productivity Research Conference (QPRC) will be hosted by the University of Connecticut and held in Storrs from June 13–15. The theme of this year's conference is "Quality and Statistics: A Path to Better Life."

The goal of the conference is to stimulate interdisciplinary research among statisticians, scientists, and engineers in quality and productivity; industrial needs; and the physical, engineering, and health sciences. Statistical issues and research approaches drawn from collaborative research will be highlighted. A poster session will display graduate and



undergraduate student research on these topics.

The conference will honor Shelemياهو Zacks of SUNY Binghamton, a prominent researcher in the fields of quality, reliability, and industrial statistics.

Conference registration covers all meals, including a banquet and a tour and reception at one of several high-tech research labs in the Storrs area.

For a small additional fee, a short course titled “Computational Bayesian Methods for Big Data Problems” will be given June 12 by Steve Scott, director of statistics research at Google.

An important objective of the QPRC is to encourage student participation. Scholarships include the Mary G. and Joseph Natrella Scholarship and QPRC student scholarships. Additionally, QPRC 2017 received funding from the National Science Foundation (NSF) to present travel awards to graduate and undergraduate students from U.S. academic institutions who plan to present their research at the conference. A special effort will be made to support women and participants from under-represented groups.

The deadline for submitting a contributed paper is April 1.

The conference website, <http://qprc2017.org>, contains information about the program, registration, student and Natrella scholarships, paper and poster submissions, and hotel and dorm reservations. The website also provides links to previous QPRC conferences.

Register early—on or before April 15—to receive a substantial discount.

For further information, contact Nalini Ravishanker at [nalini.ravishanker@uconn.edu](mailto:nalini.ravishanker@uconn.edu) or Haim Bar at [haim.bar@uconn.edu](mailto:haim.bar@uconn.edu). ■

## Statistical Learning and Data Science

The Section on Statistical Learning and Data Science announces the following student award winners:

### JSM 2017 Student Paper Award

**Xiwei Tang**, “Individualized Multilayer Tensor Learning with an Application in Imaging Analysis”

**Yichen Zhang**, “Statistical Inference for Model Parameters in Stochastic Gradient Descent”

**Jianyu Liu**, “Graph-Based Sparse Linear Discriminant Analysis for High-Dimensional Classification”

**Xin Qiu**, “Composite Interaction Tree for Robust Learning of Optimal Individualized Treatment Rules and Identifying Subgroups”

### Leo Breiman Junior Award Winners

**Ming Yuan**  
**Yufeng Liu**

### Leo Breiman Senior Award

**Grace Wahba**, for profound impacts in the area of statistical learning and data science

For more information about the Section on Statistical Learning and Data Science, visit <http://community.amstat.org/slds/home>. ■

## Teaching of Statistics in the Health Sciences

The Teaching of Statistics in the Health Sciences (TSHS) Section is pleased to announce the 2017 TSHS Portal Innovation Challenge Awards. These will be awarded to the best contributions

accepted and published on the TSHS Resources Portal ([www.causeweb.org/tsbs](http://www.causeweb.org/tsbs)) before June 1. One award of \$250 will be presented for the best contributed data set, and a second award of \$250 will be presented for the best contributed teaching materials related to an existing portal data set.

The mission of the TSHS Resources Portal is to promote excellence in the teaching of statistics in the health sciences through the dissemination of peer-reviewed health sciences-related data sets and teaching materials that are centrally archived in a public domain, easy-to-navigate website. The purpose of the Innovation Challenge Awards is to publicize the portal to increase the number of contributors and users.

Eligible portal submissions for the 2017 award may be either 1) a health sciences-related data set and codebook (no simulated data) or 2) a set of teaching materials to accompany a previously published portal data set. Teaching materials can include classroom activities, lab activities, quiz question sets, homework problem sets, and lecture notes.

All portal submissions are peer-reviewed by the TSHS portal editorial board, and accepted submissions are published on the portal. The best contributions accepted and published on the portal before June 1, as judged by the portal editorial board, will win a 2017 Innovation Challenge Award, to be presented at the TSHS mixer during the Joint Statistical Meetings in Baltimore.

More information about contributing to the TSHS portal can be found at [www.causeweb.org/tsbs/contributors](http://www.causeweb.org/tsbs/contributors). Questions can be sent to [tsbsportal@gmail.com](mailto:tsbsportal@gmail.com). ■

Center for Clinical Epidemiology  
& Biostatistics (CCEB)10th Annual  
Clinical Trials Conference**SAVE THE DATE!**
**10th Annual University of Pennsylvania  
Conference on Statistical Issues in  
Clinical Trials**
**TOPIC**
**Current Issues Regarding Data and Safety  
Monitoring Committees in Clinical Trials**

When: Wednesday, April 19, 2017

Time: 8:00 A.M. to 5:00 P.M.

Where: University of Pennsylvania, Philadelphia

**Registration to open January 4, 2016**

For further information please visit:

[http://www.med.upenn.edu/cceb/biostat/ClinTrials17\\_index.shtml](http://www.med.upenn.edu/cceb/biostat/ClinTrials17_index.shtml)
**Faculty & Provisional Talks:**

Tom Fleming, PhD, University of Washington  
*Emerging Challenges in the Practice of Clinical Trial Data  
Monitoring Committees*

David DeMets, PhD, University of Wisconsin  
*The Independent Statistician Model: How Well is it Working?*

Pamela Shaw, PhD, University of Pennsylvania  
*Choosing Monitoring Boundaries: Balancing Risks and Benefits*

Jim Neaton, PhD, University of Minnesota  
*How to Construct an Optimal Interim Report: What the DMC Does and Doesn't  
Need to Know*

**Panelists:**

Barry Davis, PhD, University of Texas  
Kay Dickersin, PhD, Johns Hopkins University  
Dennis Dixon, PhD, NIAID (retired)  
Rick Ferris, MD, NEI  
Judy Goldberg, ScD, New York University  
David Kerr, MS, Axio Research  
Steve Kimmel, MD, MSCE, University of Pennsylvania  
John Lachin, ScD, George Washington University  
Maureen Maguire, PhD, University of Pennsylvania  
Corsee Sanders, PhD, Genentech  
Steve Snapinn, PhD, Amgen  
Janet Wittes, PhD, Statistics Collaborative, Inc.

**2017****May**
**5–7—International Conference  
on Statistics and Econometrics,  
Mahdia, Tunisia**

For more information, visit [www.cisem2017.com](http://www.cisem2017.com) or contact Houđa Ben Mhenni, Tunis, Tunisia, International 2087, Tunisia; +216 50 719 680; [houdabenmhenni@gmail.com](mailto:houdabenmhenni@gmail.com).

**5–7—The 5th Workshop on  
Biostatistics and Bioinformatics,  
Atlanta, Georgia**

For details, visit [math.gsu.edu/~yichuan/2017Workshop](http://math.gsu.edu/~yichuan/2017Workshop) or contact Yichuan Zhao, 30 Pryor St., Department of Mathematics and Statistics, Atlanta, GA 30303; (404) 413-6446; [yichuan@gsu.edu](mailto:yichuan@gsu.edu).

**15–17—ARS'17 International  
Workshop, Naples, Italy**

For details, visit [www.ars17.unisa.it/index](http://www.ars17.unisa.it/index) or contact Maria Rosaria D'Esposito, Via Giovanni Paolo II, Fisciano (SA), International I-84084, Italy; (+39) 089962206; [mdeposi@unisa.it](mailto:mdeposi@unisa.it).

**»22–24—40th Annual  
Midwest Biopharmaceutical  
Statistics Workshop (MBSW),  
Muncie, Indiana**

For details, visit [www.mbswonline.com](http://www.mbswonline.com) or contact Melvin Munsaka, One Takeda Parkway, Deerfield, IL 60015; (224) 554-2846; [melvin.munsaka@takeda.com](mailto:melvin.munsaka@takeda.com).

**»29—Workshop on Statistical  
Perspectives of Uncertainty  
Quantification, Atlanta, Georgia**

For details, visit [pwp.gatech.edu/spuq-2017](http://pwp.gatech.edu/spuq-2017) or contact Roshan Joseph, Industrial and Systems Engineering, Atlanta, GA 30332-0205; (404) 894-0056; [roshan@gatech.edu](mailto:roshan@gatech.edu).

The following events are the latest additions to the ASA's online calendar of events. Announcements are accepted from education and not-for-profit organizations only. To view the complete list of statistics meetings and workshops, visit [www.amstat.org/datetime](http://www.amstat.org/datetime).

\* Indicates events sponsored by the ASA or one of its sections, chapters, or committees

» Indicates events posted since the previous issue

## June

### 5–7—14th Graybill Conference on Statistical Genetics and Genomics, Fort Collins, Colorado

For details, visit [graybill.wolpe2.natsci.colostate.edu](http://graybill.wolpe2.natsci.colostate.edu) or contact Wen Zhou, 208 Statistical Building, Colorado State University, Fort Collins, CO 80523; (970) 491-1306; [riczw@stat.colostate.edu](mailto:riczw@stat.colostate.edu).

### »7–9—ISBIS 2017 - Statistics in Business Analytics, Yorktown Heights, New York

For more information, visit [www.isbis2017.org](http://www.isbis2017.org) or contact ISBIS 2017, 1101 Kitchawan Road, Route 134, Yorktown Heights, NY 10598; (914) 945-1793; [isbis2017@gmail.com](mailto:isbis2017@gmail.com).

### 9–10—Conference in Celebration of Jeremy Taylor's 60th Birthday, Ann Arbor, Michigan

For more information, visit [sph.umich.edu/biostat/events/jeremy-taylor-event.html](http://sph.umich.edu/biostat/events/jeremy-taylor-event.html) or contact Menggang Yu, 600 Highland Ave., Madison, WI 53792; (608) 261-1988; [meyu@biostat.wisc.edu](mailto:meyu@biostat.wisc.edu).

### 11–23—Summer Institute in Social-Science Genomics, Santa Barbara, California

For details, visit [www.russellsage.org/summer-institute-social-science-genomics](http://www.russellsage.org/summer-institute-social-science-genomics) or contact Dan Benjamin, 312 Dauterive Hall, Los Angeles, CA 90089; (617) 548-8948; [RSF.Genomics.School@gmail.com](mailto:RSF.Genomics.School@gmail.com).

### 13–15—2017 Quality and Productivity Research Conference, Storrs, Connecticut

For details, visit [qprc2017.org](http://qprc2017.org) or contact Nalini Ravishanker, AUST 333, 215 Glenbrook Road, Storrs, CT 06269; (860) 486-4760; [nalini.ravishanker@uconn.edu](mailto:nalini.ravishanker@uconn.edu).

### 18–7/1—Summer Institute in Computational Social Science, Princeton, New Jersey

For details, visit [www.russellsage.org/summer-institute-computational-social-science](http://www.russellsage.org/summer-institute-computational-social-science) or contact Matt Salganik, 145 Wallace Hall, Princeton, NJ 08544; (609) 258-8867; [rsfcompsocsci@gmail.com](mailto:rsfcompsocsci@gmail.com).

### 20–23—The 10th International Conference on Multiple Comparison Procedures, Riverside, California

For details, visit [www.mcp-conference.org](http://www.mcp-conference.org) or contact Xinpeng Cui, 1337 Olmsted Hall, University of California at Riverside, Riverside, CA 92521; (951) 827-2563; [xinping.cui@ucr.edu](mailto:xinping.cui@ucr.edu).

## July

### 2–7—IWSM 2017, Groningen, The Netherlands

For more information, visit [iws2017.webhosting.rug.nl](http://iws2017.webhosting.rug.nl) or contact Marco Gzegorczyk, Nijenborgh 9, Groningen, International 9747 AG, Netherlands; +31503633985; [m.a.grzegorczyk@rug.nl](mailto:m.a.grzegorczyk@rug.nl).

### \*3–7—ICORS 2017, Wollongong, Australia

For more information, visit [niasra.uow.edu.au/icors2017/index.html](http://niasra.uow.edu.au/icors2017/index.html) or contact Anica Damcevski, NIASRA, University of Wollongong, Wollongong, International 2522, Australia; 0061-2-4221-5435; [icors2017@uow.edu.au](mailto:icors2017@uow.edu.au).

### »3–7—Research on Productivity, Trade, and Growth: Theory and Practice, Amsterdam, The Netherlands

For more information, visit [www.tinbergen.nl/tinbergen-institute-summer-school/research-productivity-trade-growth-theory-practice](http://www.tinbergen.nl/tinbergen-institute-summer-school/research-productivity-trade-growth-theory-practice) or contact Judith van Kronenburg, Gustav Mahlerplein 117, Amsterdam, International 1087 MS, The Netherlands; +31 (0)10 40 88919; [summerschool@tinbergen.nl](mailto:summerschool@tinbergen.nl).

### 9–13—38th Annual Conference of the International Society for Clinical Biostatistics, Vigo, Spain

For details, visit [jacobowebs.uvigo.es/Flyer\\_ISCB38.pdf](http://jacobowebs.uvigo.es/Flyer_ISCB38.pdf) or contact Jacobo de Uña Álvarez, University of Vigo, Department of Statistics and OR, Vigo, International 36310, Spain; 986812492; [jacobo@uvigo.es](mailto:jacobo@uvigo.es).

### »10–28—2017 UW Biostatistics Summer Institutes, Seattle, Washington

For details, visit [www.biostat.washington.edu/suminst](http://www.biostat.washington.edu/suminst) or contact Deb Nelson, UW Tower 15T, Campus Box 359461, Seattle, WA 98195; (206) 685-9323; [uwbiostat@uw.edu](mailto:uwbiostat@uw.edu).

### 12–14—Data Science, Statistics, and Visualisation (DSSV 2017), Lisbon, Portugal

For details, visit [iasc-isi.org/dssv2017](http://iasc-isi.org/dssv2017) or contact Peter Filzmoser, Vienna University of Technology, Vienna, International 1040, Austria; +43 1 58801 10560; [P.Filzmoser@tuwien.ac.at](mailto:P.Filzmoser@tuwien.ac.at).

## Florida

■ The Health Informatics Institute at the University of South Florida invites applications for an open-rank research faculty position in biostatistics. The Institute is NIH-funded as a statistics and data coordinating center for several large clinical research networks ([www.hii.usf.edu](http://www.hii.usf.edu)). Preferred areas of interest include longitudinal data analysis, clinical trials, and Big Data analytics. University benefits package, EOE. Apply to position 5219 at [Careers@USF.edu](mailto:Careers@USF.edu) [www.hii.usf.edu](http://www.hii.usf.edu).

## Iowa

■ The department of statistics at Iowa State University is seeking candidates for two open-rank tenure-track faculty positions. The appointments will be affiliated with the Center for Statistics and Applications in Forensic Evidence. Duties of a successful candidate will include statistics research related to forensic sciences, undergraduate and graduate teaching, graduate advising, and professional and institutional service. The complete position posting at [www.iastate-jobs.com/postings/23413](http://www.iastate-jobs.com/postings/23413). Iowa State University is an Equal Opportunity/Affirmative Action employer.

## Massachusetts

■ Biostatistics faculty position: Tufts University Friedman School of Nutrition Science and Policy seeks candidates for faculty position in biostatistics, at all levels. Rank will be determined by experience and accomplishments. Ideal candidate would possess doctoral degree in biostatistics and an understanding of nutrition and public health. PhD in related field such as epidemiology is acceptable if candidate possesses masters or bachelors degree in statistics. <https://apply.interfolio.com/38479> EOE.

Professional Opportunity listings may not exceed 65 words, plus equal opportunity information. The deadline for their receipt is the 20th of the month two months prior to when the ad is to be published (e.g., May 20 for the July issue). Ads will be published in the next available issue following receipt.

Listings are shown alphabetically by state, followed by international listings. Vacancy listings may include the institutional name and address or be identified by number, as desired.

Professional Opportunities vacancies also will be published on the ASA's website ([www.amstat.org](http://www.amstat.org)). Vacancy listings will appear on the website for the entire calendar month. Ads may not be placed for publication in the magazine only; all ads will be published both electronically and in print.

**Rates:** \$320 for nonprofit organizations (with proof of nonprofit status), \$475 for all others. Member discounts are not given. For display and online advertising rates, go to [www.amstat.org/ads](http://www.amstat.org/ads).

Listings will be invoiced following publication. All payments should be made to the American Statistical Association. All material should be sent to *Amstat News*, 732 North Washington Street, Alexandria, VA 22314-1943; fax (703) 684-2036; email [advertise@amstat.org](mailto:advertise@amstat.org).

Employers are expected to acknowledge all responses resulting from publication of their ads. Personnel advertising is accepted with the understanding that the advertiser does not discriminate among applicants on the basis of race, sex, religion, age, color, national origin, handicap, or sexual orientation.

Also, look for job ads on the ASA website at [www.amstat.org/jobweb](http://www.amstat.org/jobweb).

## Director of the Biostatistics Unit

The University of Iowa's College of Dentistry is searching for Director of the Biostatistics Unit, a FT tenure-track faculty position in the Iowa Institute for Oral Health Research. Position available June 1, 2017; screening begins immediately. Required: Ph.D. in Biostatistics, or Statistics w/significant emphasis in biomedical applications; established track record of independent/collaborative research; history of effective conduct of research as part of multidisciplinary team; demonstrated evidence of effective teaching; supervisory experience; and demonstrated experience working effectively in diverse environment. Highly desirable: excellent written/verbal communication skills; effective interpersonal skills; effective biostatistical consulting skills; experience participating in externally-funded grant projects; experience teaching health science students biostatistics/research design; experience mentoring student research; professional/scholarly growth commensurate w/duration of experience; and strong record of scientific publication/presentation at professional meetings. Desirable: experience mentoring junior faculty; and knowledge of dental nomenclature/classification.

Academic rank/salary commensurate with qualifications/experience. Learn more and/or apply at [Jobs@UIowa](mailto:Jobs@UIowa) at <http://jobs.uiowa.edu/content/faculty/>, reference Req #70443.

*The University of Iowa is an equal opportunity/affirmative action employer. All qualified applicants are encouraged to apply and will receive consideration for employment free from discrimination on the basis of race, creed, color, national origin, age, sex, pregnancy, sexual orientation, gender identity, genetic information, religion, associational preference, status as a qualified individual with a disability, or status as a protected veteran.*



## Michigan

■ The Survey Research Center ([www.src.isr.umich.edu](http://www.src.isr.umich.edu)) in the Institute for Social Research at the University of Michigan invites applications from outstanding candidates for director, Survey Sampling Group, with doctorate in social science area. For details about this position, see: [www.src.isr.umich.edu/careers/research-scientist](http://www.src.isr.umich.edu/careers/research-scientist). Applicants should submit a cover letter, CV, names of references, and one or two publications. Documents should be sent to [srcsearches@umich.edu](mailto:srcsearches@umich.edu). Reference position #136458 [www.src.isr.umich.edu/careers/research-scientist](http://www.src.isr.umich.edu/careers/research-scientist). The University of Michigan is an Affirmative Action/Equal Opportunity Employer and is responsive to the needs of dual career couples. Women and minority candidates are encouraged to apply.

## New Hampshire

■ Postdoctoral Training Program, Quantitative Biomedical Sciences in Cancer, Geisel School of Medicine at Dartmouth invites applications for a multidisciplinary program preparing quantitative scientists for careers in cancer research. Candidates are appointed 2 yrs/min, stipends provided. Applicants must possess a PhD or MD degree and be citizens, non-citizen nationals or permanent residents of the U.S. Send applications to: [Vicki.Sayarath@Dartmouth.edu](mailto:Vicki.Sayarath@Dartmouth.edu). Dartmouth is an affirmative action/equal opportunity employer.

## New Jersey

■ ETS (Educational Testing Service) in Princeton, NJ, is seeking: Senior Research Director-Lead to work on the design, analysis, and reporting for national and international educational assessments. Principal Research Director-Oversee the execution of R&D in foundational, applied statistical, psychometric research and data analysis. Doctoral degree in educational measurement or related field, 12 years of technical and management leadership experience required. Apply: <http://bit.ly/ETS-Psychometrics>. ETS is an Equal Opportunity Employer.

# Job hunting?

# The ASA can help!



CHECK OUT  
OUR JOB  
RESOURCES

1

**JOBWEB**, our targeted job database and résumé-posting service, [www.amstat.org/jobweb](http://www.amstat.org/jobweb)

2

**JSM CAREER SERVICE**, our onsite JSM interview service connecting hundreds of applicants to hundreds of positions and recruiters from more than 70 employers, [www.amstat.org/meetings/jsm](http://www.amstat.org/meetings/jsm)

## New York

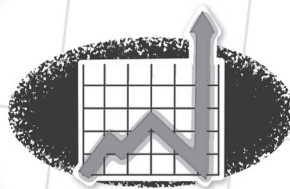
■ Search for Chair of Biostatistics. The School of Public Health and Health Professions, State University of New York at Buffalo, seeks a chair of biostatistics. Must have a strong record of excellence in academic leadership, statistical research, including peer-reviewed, extramurally-funded research. PhD in biostatistics or related discipline and a record consistent with appointment at the rank of full professor with tenure. Please apply [www.ubjobs.buffalo.edu/applicants/Central?quickFind=59542](http://www.ubjobs.buffalo.edu/applicants/Central?quickFind=59542). University of Buffalo is an EOE.

■ Memorial Sloan-Kettering Cancer Center (New York) has a faculty opening for a doctoral-level biostatistician with an interest in independent and collaborative research in important problems in cancer to join an existing group of 35 biostatisticians (20 faculty and 15 research staff; [www.mskcc.org/biostat](http://www.mskcc.org/biostat)). Send CV and contact information for three referees to [wongk1@mskcc.org](mailto:wongk1@mskcc.org). MSKCC is an Equal Opportunity Employer.

## North Carolina

■ Assistant/Associate Professor of Biostatistics or Statistics. University of North Carolina Charlotte invites applications for the position of assistant/associate professor of biostatistics or statistics. This nine-month, tenure-track position is located in the Department of Public Health Sciences. Expected start date is August 15, 2017. For a full description, requirements, and to apply, electronic applications are required, visit <http://jobs.uncc.edu> (position #004715). EOE/AA and an NSF ADVANCE Institution.

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[www.westat.com](http://www.westat.com)

### Pennsylvania

■ The Department of Mathematics, Physics, and Statistics at the University of the Sciences invites applications for a tenure-track assistant professor position in statistics. A PhD in statistics, biostatistics, or related area is required by the starting date. Applicants must demonstrate a strong commitment to teaching, research, and mentoring students. Please visit [www.usciences.edu/mps](http://www.usciences.edu/mps) for information. Apply online <http://careers.usciences.edu/postings/5293>. EEO/AA Minorities, females, individuals with disabilities, and protected veterans are encouraged to apply. ■

# Duke UNIVERSITY

## PROFESSOR OF PRACTICE (MASTER'S PROGRAM ADMINISTRATOR) POSITION, DUKE UNIVERSITY

The Department of Statistical Science invites applications for an open rank position in the Professor of the Practice of Statistical Science track to begin in Fall 2017. This is a term renewable position. The appointee will serve as the full-time Master's Program Administrator (MPA) in the department for the Master's in Statistical Science (MSS) program. The MSS, launched in 2014 and already successful and visible, is a 2-year degree that provides a modern, comprehensive education in statistical theory, methods and computation, brings students into challenging, real-world research areas, and prepares students for positions in industry, government and other sectors as well as for PhD programs. Roughly half of the graduating MSS students move to R&D in industry, and about half to PhD programs. In concert with the graduate faculty leadership, the Master's Program Administrator will build on the existing foundation of the program to extend and develop partnerships in industry, government, non-profit, and other sectors, expanding internships and post-graduation job opportunities, as well collaborate with departmental faculty on aspects of the MSS administration and curriculum, and contribute to teaching and mentoring.

Full details of the department and the MSS program can be found at [www.stat.duke.edu](http://www.stat.duke.edu)

Preference will be given to candidates with post-PhD experience in R&D in relevant areas, track records in statistical research and education, and a strong interest in program development and administration with relevant experience in leadership and mentoring. To apply, submit a letter, curriculum vitae, personal statement of research and teaching and names/letters from three references via <https://academicjobsonline.org/ajo/jobs/8716>.

Enquiries can be emailed to [mpa-search@stat.duke.edu](mailto:mpa-search@stat.duke.edu). The application pool will remain open until the position is filled; screening will begin on February 1, 2017.

Duke University, located in Durham NC, is an Affirmative Action/Equal Opportunity Employer committed to providing employment opportunity without regard to an individual's age, color, disability, genetic information, gender, gender identity, national origin, race, religion, sexual orientation, or veteran status. Applications from women and minorities are strongly encouraged. Individuals in dual career couples are encouraged to visit the website on Duke's Advantages for Faculty, <http://provost.duke.edu/faculty/partner/>, for information on opportunities for dual career couples in the area and how the university can help.

**Chair, Department of Biostatistics and  
Computational Biology  
Dana-Farber Cancer Institute**

**Professor of Biostatistics  
Harvard T.H. Chan School of Public Health**

The Dana-Farber Cancer Institute and the Harvard T.H. Chan School of Public Health are seeking a distinguished scientist to serve as chair of the Department of Biostatistics and Computational Biology at the Dana-Farber Cancer Institute. The successful candidate will also be appointed as a tenured professor in the Department of Biostatistics at the Harvard T.H. Chan School of Public Health and will provide leadership in the cancer training and research program in the department.

The Department of Biostatistics and Computational Biology at the Dana-Farber Cancer Institute is an active department of 21 faculty, 12 doctoral research scientists, 21 masters-level statisticians, and 12 bioinformatics analysts/engineers conducting wide-ranging methodological research in biostatistics and computational biology and collaborative research in cancer. The department is home to the statistical centers for the International Breast Cancer Study Group and the ECOG-ACRIN Cooperative Group, coordinates the Biostatistics Core Facility for the Dana-Farber/Harvard Cancer Center, and is the principal site of the Centers for Cancer Computational Biology, Functional Cancer Epigenetics, and Center for Cancer Evolution and cBio Center. The department is closely affiliated with the Department of Biostatistics at the Harvard T.H. Chan School of Public Health, where many of the department's faculty hold primary appointments and participate in the graduate training program.

The successful candidate will be a visionary leader, internationally recognized as a pre-eminent scientist with an established record of scholarship, ideally in the area of cancer research. Candidates should hold a doctoral degree in a relevant field.

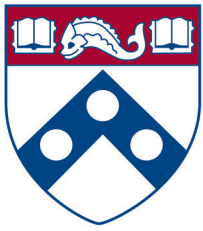
Please submit a letter of application, including a statement of current and future research interests, a curriculum vitae, and sample publications, online at <http://academicpositions.harvard.edu/postings/7145> . It would be helpful if you would also provide the names of senior scholars likely to be most knowledgeable about your field and about your work in particular. Please contact [facultyaffairs@hsph.harvard.edu](mailto:facultyaffairs@hsph.harvard.edu) with any questions.

Dana-Farber Cancer Institute and Harvard University seek to find, develop, promote, and retain the world's best scholars and are Affirmative Action/Equal Opportunity Employers. Applications from women and minority candidates are strongly encouraged.

The Department of Biostatistics and Computational Biology at Dana-Farber Cancer Institute provides a flexible working environment and provides a balance between work and life. Information on resources for career development and work/life balance at the Harvard Chan School can be found at: <https://hlc.harvard.edu/hlc-work-life-programs-at-a-glance/>.

*We are an equal opportunity employer and all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, disability status, protected veteran status, or any other characteristic protected by law.*





# Perelman School of Medicine UNIVERSITY of PENNSYLVANIA

## Director of Biostatistics, Full Professor, Tenure Track or CE-Track

The Department of Biostatistics and Epidemiology at the Perelman School of Medicine at the University of Pennsylvania seeks candidates for a Full Professor position in either the non-tenure clinician-educator track or the tenure track. Applicants must have a Ph.D. or equivalent degree.

The department seeks a distinguished senior faculty scientist for an open position as Director of the Division of Biostatistics. Candidates must have an internationally recognized record of scholarship, and have demonstrated successful academic research leadership experience. The Division of Biostatistics is the academic home for 35 primary faculty, within a vibrant multidisciplinary academic department comprised of three divisions – Biostatistics, Epidemiology and Informatics with a total of 94 primary faculty.

The successful candidate will be a visionary leader, dedicated to faculty career development, and strong advocacy for methodological, collaborative and team-oriented research, as well as training the next generations of biostatistics scientists. A demonstrated track record as the principal investigator of methodological programs supported by extramural grant funding is required. Penn offers a rich mix of ongoing population health sciences research opportunities, within a thriving biomedical, translational and clinical research environment.

Candidates are expected to have a strong commitment to teaching. The Graduate Group in Epidemiology and Biostatistics (GGEB) offers degree programs leading to both the Doctor of Philosophy (PhD) and Master of Science (MS) in Biostatistics. Since admitting its first cohort of biostatistics students in 2000, 62 PhD and 28 MS students have successfully graduated and assumed highly competitive positions in academics, industry and governmental agencies. The graduate program in biostatistics is expanding, with current enrollment of 31 PhD and 6 MS students. Teaching responsibilities also include participation in Penn's Center for Clinical Epidemiology and Biostatistics (CCEB) academic programs and other medical school educational programs.

Review of applications will begin immediately, and will continue to be accepted until the position is filled. The expected start date is July 2017 or later.

We seek candidates who embrace and reflect diversity in the broadest sense.

The University of Pennsylvania is an EOE. Minorities/Women/Individuals with disabilities/Protected Veterans are encouraged to apply.

Apply for this position online at:

[https://www.med.upenn.edu/appl/faculty\\_adl/index.php/g/d4568](https://www.med.upenn.edu/appl/faculty_adl/index.php/g/d4568)

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For math and statistics awareness month, we ask you to tell us your story in 140 characters: "How did you fall in love with stats?"

**Rheta Lanehart** Slide rules; substituting the mean value for missing data (no MI).

**Gavin Stewart** P-values (soon please)

**Kenneth Ganning** CRC, for that matter tables in general.

**Tom Carpenter** mean splits and group comparisons

**Susan Paddock** (Dial-up)

**Stephen Martin** Frequentism.

**Lowell Cabotage** Common sense. 😊

**James Love** Walking across campus with a 10-pound metal box containing a single program on cards

**Kenneth Ganning** and PRAY you don't drop it.

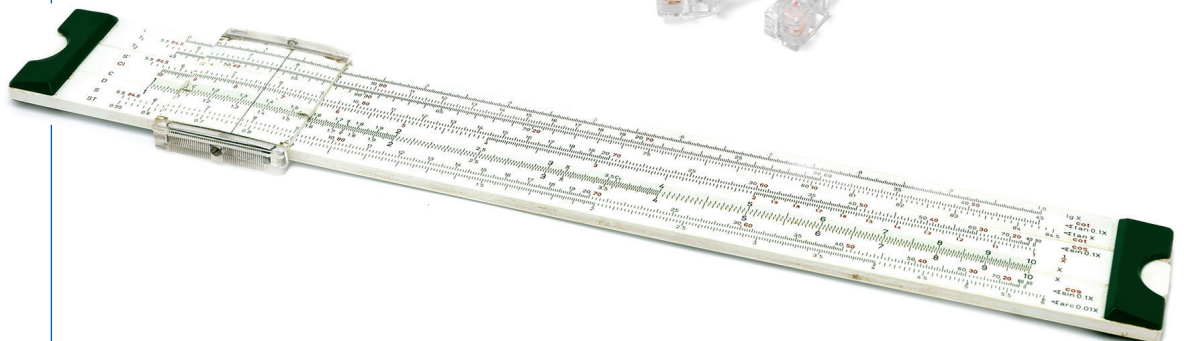
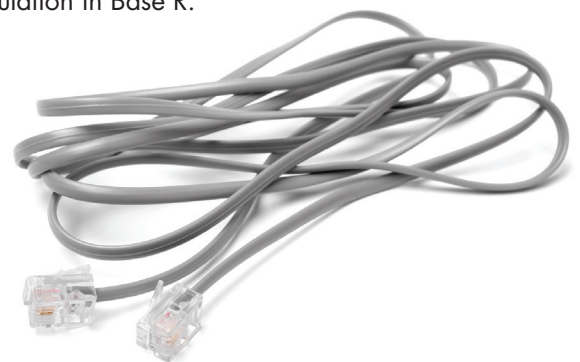
**Brandon Sherman** Heavy data manipulation in Base R.

**Tom Carpenter** Small samples

**Kel Zou** Sun Workstation!

**Susan Paddock** Modem

**Muhammad Ilyas Khan** Applications



Jianbiao John Pan Professor of Industrial and Manufacturing Engineering, California Polytechnic State University

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