

February 2015 • Issue #452

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The American Statistical Association is the world's largest community of statisticians. The ASA supports excellence in the development, application, and dissemination of statistical science through meetings, publications, membership services, education, accreditation, and advocacy. Our members serve in industry, government, and academia in more than 90 countries, advancing research and promoting sound statistical practice to inform public policy and improve human welfare.

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**Advocating for Your Profession: Being a Statistical Ambassador**

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).



Pierson

Contributing Editor

*Steve Pierson earned his PhD in physics from the University of Minnesota. He spent eight years in the physics department of Worcester Polytechnic Institute before becoming head of government relations at the American Physical Society. He is now director of science policy for the ASA.*



## Online Articles

The following articles in this issue can be found online at <http://magazine.amstat.org>.

The February issue of **Technometrics** hosts an array of topics such as dimension reduction, functional data analysis, experimental designs, and Gaussian processes. Read the editor's take on the issue at <http://magazine.amstat.org>.

Are you part of the **Biometrics Section** and want to get more involved in JSM? Consider volunteering to chair a session. If you are interested, contact the section's 2015 program chair, Rebecca Hubbard, at [rhubb@upenn.edu](mailto:rhubb@upenn.edu).

The ASA Biometrics Section also invites applications for funding to support career-development efforts for assistant professors or associate/full professors interested in moving into a new research area. A one-page application is due February 15, and details can be found at <http://magazine.amstat.org>.

### Additional Resources at [www.amstat.org](http://www.amstat.org)

Make the most of your ASA membership. Visit the **ASA Members Only** site: [www.amstat.org/membersonly](http://www.amstat.org/membersonly).

Visit the **ASA Calendar of Events**, an online database of statistical happenings across the globe. Announcements are accepted from educational and not-for-profit organizations. To view the complete list of statistics meetings and workshops, visit [www.amstat.org/dateline](http://www.amstat.org/dateline).

Network with thousands of colleagues through the **ASA's regional chapters and special-interest sections**. For more information, visit [www.amstat.org/chapters](http://www.amstat.org/chapters) or [www.amstat.org/sections](http://www.amstat.org/sections).

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# Eric Vance Talks Mentoring



Eric Vance

**Mentor** *noun*: a wise and trusted counselor or teacher.

If we were lucky, we benefitted from one or more senior colleagues who took an interest in our careers, perhaps when we were graduate students or maybe at one of our early jobs. While a lot of mentoring happens organically, our association, chapters, and sections can do much to create opportunities to both be a mentor and receive guidance from one.

As one example, I suspect many graduate students would welcome a connection with a more senior and experienced statistician as they move from studies to career. These opportunities have bi-directional benefits and bring value to both.

Former ASA President Sastry Pantula, who frequently spoke about the value of mentoring, said,

“Appropriate mentoring can help develop a career, enhance confidence, and provide a sense of belonging. A mentor is like the oil that lights your path to the future and lets you (not himself/herself) shine.”

What’s more, we speak to our values by recognizing outstanding mentors and the service they provide to others and our profession. Perhaps it’s time for the ASA to begin offering an annual recognition for an outstanding mentor.

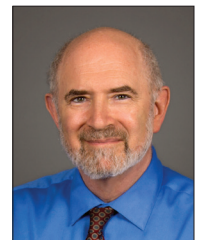
Eric Vance, Virginia Tech associate research professor and director of LISA (Virginia Tech’s Laboratory for Interdisciplinary Statistical Analysis), offered to lead one of my presidential initiatives on the importance of mentoring and is helping in a number of ways to expand and recognize mentoring within our association. This month, let’s talk to Eric, get acquainted, see what’s been happening the past couple of years, and learn about what he is planning for 2015.

## Eric, why is mentoring important to you?

To me, mentoring is about enabling success. I don’t know if anybody can become successful without some mentoring and guidance from those with more experience. Every day in my job as director of LISA, I see the positive impact statistical thinking has on people’s research. And every week, I read an article about Big Data or analytics that never even mentions statistics or statisticians! I want to increase the impact of statistics and statisticians worldwide, and mentoring is an important step. We statisticians need to help each other. What better way than to mentor a statistician early in their career?

## What can mentoring offer a statistician who is just starting their career?

One of the things that attracted me to the field of statistics was the opportunity to do whatever I wanted and “play in everyone’s backyard.” With



David Morganstein

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## Seasoned statisticians can get a fresh perspective on the field from their mentee and learn new things.

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such freedom in applying statistics, a statistician just starting their career could become overwhelmed with all the possibilities. It's not always so easy to start out with a blank canvas. A mentor can offer a mentee examples and stories of how they have used their statistical training. They can paint a picture that is rich with details that can help others creatively direct their own careers.

Of course, sharing lessons learned can also help a statistician just starting their career to avoid growing pains.

### **Did you have mentors who guided you in your career?**

Michael Lavine was my first statistical collaboration mentor; David Banks became my research advisor; and now I trade ideas with Doug Zahn about how to better train statisticians to become effective statistical collaborators. I also consider several of my students to be my mentors, as I continually learn from them.

### **What can mentoring offer a more seasoned statistician? What might they get out of it?**

Mentoring is a two-way street. Mentors get as much as they give. Seasoned statisticians can get a fresh perspective on the field from their mentee and learn new things. They can learn and practice their leadership and teaching skills via mentoring. In fact, mentoring can be part of their personal career development plan in that it may be necessary to demonstrate competency in mentoring before being promoted.

### **What does the CAS "Mentoring in a Bag" material provide for someone interested in mentoring?**

The Committee on Applied Statisticians (CAS), led by Amarjot Kaur, developed a short, one-page guide

for a statistician learning to be an effective mentor or mentee. The idea is that this guide can explain the basics for starting a mentoring relationship, such as the four stages in a mentoring relationship (establishing rapport, identifying goals, assessing progress, and moving on). We hope this guide can be placed in a conference bag for interested attendees to jumpstart a mentoring relationship.

### **What does the CAS "Mentoring in a Box" material offer a chapter or section interested in starting a mentoring program?**

Starting a mentoring program from scratch can be difficult. We in CAS know that because we've done it. Basically, everything we have learned about creating and sustaining a mentoring program for statisticians has been evolved from the Mentoring in a Bag initiative and distilled into material we call "Mentoring in a Box." A chapter or a section interested in starting a mentoring program can "open" the box and find ready-to-use email text, survey templates, procedures, and guidelines to run their own mentoring program. For example, the box contains an online survey a chapter or section can modify to use for recruiting participants and an algorithm to efficiently match mentors and mentees.

Several ASA sections and at least one chapter will be starting mentoring programs in 2015 based on the templates and guides provided by CAS in Mentoring in a Box.

### **What have you heard back from ASA members who served as mentors?**

I am familiar with the CAS mentoring program for applied statisticians and the 2014 CSP and JSM mentoring programs. Something I've heard from mentors in all three programs is that mentees need to know that it's on the mentee to drive the agenda and to make sure the relationship continues after the initial meeting. After the mentors initially help the mentees identify career goals and mileposts, the mentees must be proactive about communicating with the mentors on their progress. We will be sure to include this information in future mentoring programs.

### **What have you heard from ASA members who have received a mentor?**

The feedback I've gotten from mentees has been mixed! Some mentees gush about the programs and their mentors and how they benefited from the experience. Several mentees received job offers as a direct result of advice their mentors gave them. Other mentees felt they were mismatched or that their mentors didn't show much interest in them.

## How have mentees and mentors been matched up in these programs?

We have used different matching strategies in each mentoring program to see what works best. In one, we matched the participants based on their CVs, but we found this approach too time consuming. In another, based on some short answers about what they wanted to get out of the program, I matched all the mentors and mentees myself, which was quite a bit of manual labor. For the most recent 2014 JSM mentoring program, I clustered the mentors and mentees into “buckets” based on their answers to multiple-choice questions. Then, I matched mentors and mentees within each bucket, which reduced the complexity of the matching problem.

For the 2015 CSP mentoring program, we’ll use the intake survey template of multiple-choice and short-answer questions from *Mentoring in a Box* to cluster participants into buckets, and then our committee members will match participants within one bucket each. Sometimes, there’s an imbalance of interests and it’s hard to match everyone appropriately. Sometimes, the perfect match just pops out at you.

## The mentoring program at the 2014 CSP involved quite a high proportion of the attendees. How do you think that affected the environment at the CSP?

Since its inception in 2012, CSP has been a small, friendly conference that encourages participants to meet each other and engage in conversation. Hopefully, the mentoring program will further encourage those types of interactions at CSP. One attendee told me that because of all the mentors and mentees at CSP last year, she benefited from three separate mentoring conversations, even though she wasn’t participating in the formal mentoring program!

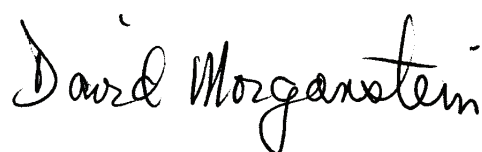
## What other mentoring plans are in the works?

At the CSP this month in New Orleans, our mentoring program will match mentors and mentees for an initial face-to-face meeting to build rapport. Hopefully, they’ll continue their mentoring relationship after the conference. We also will be conducting a panel discussion on mentoring at CSP during which we’ll hope to engage with the audience to hear their ideas about how the ASA can support mentoring.

For the JSM mentoring program, we will expand from 50 pairs last year in Boston to 100 [this year] in Seattle. Last year, we asked the ASA Fellows to

participate as mentors—that worked really well! We’ll do the same this year and open it up to other attendees who would like to serve as mentors.

The Biopharmaceutical Section and the Washington Statistical Society have already created mentoring programs. This year, I’m chair of the Section on Statistical Consulting, and we’ll be trying two new things. The first is to help our members organize group mentoring sessions centered on specific topics, such as how to start your own consulting business, conducted semi-monthly via Google Hangouts. The second is actually your idea. Our section will solicit nominations for a mentoring award. Recognizing outstanding mentors and the importance of mentoring is an important way to promote the practice and profession of statistics.



## Nonclinical Biostatistics Conference: Call for Abstracts

A conference devoted to nonclinical biostatistics will take place October 13–15 at the Connelly Conference Center at Villanova University in Villanova, Pennsylvania. The conference is jointly organized by statisticians from industry, academia, and the FDA in collaboration with the department of mathematics at Villanova.

The conference theme is “Nonclinical Statistics—Building Continuity from Discovery Through Manufacturing.”

The conference will provide a venue for the presentation and discussion of scientific and statistical issues relevant to nonclinical biostatistics. Registration and a call for abstracts will open February 15. All information, key dates, and registration materials will be posted as they become available at [www.ncb2015.net](http://www.ncb2015.net).

Questions, suggestions, and comments may be directed to [paul.r.mcallister@gsk.com](mailto:paul.r.mcallister@gsk.com).

# Recognizing the ASA's Lifetime Members



The American Statistical Association would like to thank its lifetime members. We are grateful to the following members for their distinguished and faithful membership. Your lifetime membership in the ASA demonstrates your commitment to our association and to statistics. Lifetime membership includes all benefits of regular ASA membership and is intended for those who wish to continue the benefits of ASA membership with one final payment.

If you are a lifetime member and your name is not below and you believe it should be included, contact Amy Farris at [amy@amstat.org](mailto:amy@amstat.org) to correct your record.

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# SAVE THE DATE: BASS XXII November 2–6

The 22nd meeting of the Biopharmaceutical Applied Statistics Symposium (BASS XXII) will be held November 2–6 at the Crowne Plaza Washington DC-Rockville. At least 16 one-hour tutorials on diverse topics pertinent to the research, clinical development, and regulation of pharmaceuticals will be presented November 2–4 by speakers from academia, the pharmaceutical industry, and the U.S. Food and Drug Administration (FDA). Two parallel two-day short courses will be presented November 6–7.

Highlights of BASS XXII will be the keynote address November 3, with a reception dinner following, and the FDA/industry/academia session November 4.

BASS is a nonprofit entity established to raise funds to support graduate studies in biostatistics. To date, BASS has provided support to more than 50 master's or doctoral biostatistics students.

For further information, visit [www.bassconference.org](http://www.bassconference.org) or contact the BASS registrar at [Rewhitworth@gmail.com](mailto:Rewhitworth@gmail.com), Andreas Sashegyi at (317) 532-7414 or [aisasheg@lilly.com](mailto:aisasheg@lilly.com), or Karl Peace at (912) 225-3713 or [peacekarl@frontier.com](mailto:peacekarl@frontier.com).

## STAFF SPOTLIGHT

# Sara Davidson



Sara Davidson

Hi, smart people. My name is Sara Davidson, and I'm one of ASA's graphic design and production coordinators. I work on many products that end up in your mailbox—the literal one and digital one—such as *Amstat News*, reminder flyers and postcards, web logos, and more.

I grew up in the suburbs of Kansas City, Missouri (Missouree, not Missourah), which instilled in me a life-long love of good barbecue and an appreciation for DC's mild winters. In 2004, I graduated from the University of Missouri with a degree in photojournalism and a love for design. I spent the next 10 years working at newspapers, most recently at Gannett's Military Times family of publications, where I was a design editor and lead contributor to their PT365 health and fitness blog.

In my free time, I balance a running addiction with an equally large cheeseburger



Sara Davidson and friend Rob Colenso at mile 49 of the Athletic Equation OSS/CIA 50-Mile Night Run near Quantico, Virginia, in June of 2014

addiction. After moving to the East Coast, I ran my first half-marathon with the Leukemia and Lymphoma's Team in Training charity running team.

Then I just kept going; in March, I hope to finish my second 100-mile race.

My job at the ASA is my first outside of journalism, and I'm looking forward to learning as much about associations, statistics, and data as my math-starved brain can handle.

I hope to meet many of you at CSP in New Orleans or JSM in Seattle. If you have questions (or if you just want to chat about trail running), you can reach me at [sara@amstat.org](mailto:sara@amstat.org). ■





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# FIVE ELEMENTS to Keep Your Working Group Active

Jamie Nunnally, National Institute of Statistical Sciences Communications Director



The Statistical and Applied Mathematical Sciences Institute (SAMS), a National Science Foundation–funded institute, typically holds one to two major programs each year. During the opening workshops, working groups are formed and then meet on a regular basis to collaborate on a particular research subject of interest. While most groups dissipate after the research program is formally over, others are still active, even several years later.

One group may take the cake for meeting the longest on a regular basis. The paleoclimate group, now known as the “Paleo Family,” began meeting as part of the 2009–2010 program on Space-Time Analysis for Environmental Mapping, Epidemiology, and Climate Change. The group includes former SAMS postdocs Bala Rajaratnam (assistant professor at Stanford University), Martin Tingley (assistant professor at Penn State University), Elizabeth Mannshardt (postdoctoral fellow at North Carolina State University), and Murali Haran (associate professor at Penn State University), along with Bo Li (associate professor at the University of Illinois at Urbana-Champaign) and Peter Craigmile (associate professor at The Ohio State University).

What is the key to their success? Two of the six participants, Rajaratnam and Mannshardt, recently visited SAMS and gave the following reasons for why this group has been so successful:

- **Interesting area of research.** The scientific question is what glues the group together.
- **Open-mindedness.** It helps that most of the people in the group were willing to go outside their areas of expertise.
- **Different skill sets.** The group members work in a range of fields, encompassing



From left: Martin Tingley, Liz Mannshardt, Bo Li, Peter Craigmile, and Murali Haran

statistical methodology, applications, and theory. Each person brings different strengths and insights to the group. Diversity is key: We come from six countries across four continents, so our discussions and the research draws from varied experiences in different cultures.

- **Discussions about how to think about the problem.** Much of what we spend time on is figuring out how to frame the problems we work on and to make a judgment about what may be most important and scientifically relevant to the paleo community. “There are not straightforward answers. It takes us much thought and discussion to get our heads around these questions,” said Mannshardt.
- **A sense of humor.** Everyone can take a joke. “I look forward to our meetings,” said Rajaratnam. “We always poke fun at each other, but not in a harmful way. It is always a lot of fun.”

For more information about the paleoclimate working group, contact Tingley at [mpt14@psu.edu](mailto:mpt14@psu.edu). ■

## More online.

Find out more about upcoming working groups at SAMS by visiting [www.samsi.info](http://www.samsi.info).



# Richard (Dick) De Veaux's Amazing Balancing Acts

Amy Munice, ALM Communications



**D**ick De Veaux may be the only ASA Board member who jokingly sighs about the sadness of “losing his baritone to tenure.”

No, he’s not referring to his time as “Statistician to the Grateful Dead”—a true, if unusual, credit on his rather long statistical consulting résumé. Rather, it was the end of his Williams College doo-wop band, “The Diminished Faculty,” a fun run of six years that helped De Veaux find the right brain/left brain balance he seemingly craves.

That right brain/left brain balancing hunger also probably makes him the only ASA Board member who wore tights for a living. De Veaux was a professional modern dancer for four years, a career he might have pursued if his back and bank account had held out longer and his thirst for math had not brought him back into the fold.

At first, dance was attractive to De Veaux largely because it was so statistics-not. He recounts:

I first started dancing when I was 23 years old and studying for my PhD orals, an age nobody recommends as the starting point for dancing. I wasn’t trying to be a professional dancer. I just wanted to stop thinking about statistical theories. I had tried everything I could think of to stop the statistical thoughts—yoga, meditation, swimming. Dance worked! For an hour and a half, I didn’t think about anything except which foot to put where. I got very excited and within a couple of months I was taking eight to nine hours of classes every day—three modern dance and three ballet. I was also biking about 200 miles a week to get there.

At the same time, though, I was doing consulting and also learning programming while I was a statistical consultant at the Palo Alto Center for Advanced Studies in the Behavioral Sciences. The only problem was that not much was happening to get my

dissertation done. In the midst of this, I decided to audition for a dance company led by Tandy Beal, and I got in. It was a perfect fit because we only worked for three months—performing at colleges, teaching master classes, and we’d finish the season with a big performance in San Francisco’s Palace of Fine Arts. But this gave me the bug, and I knew I wanted to pursue a career as a dancer.

It was no lack of fortune that De Veaux’s advisor at Stanford, Persi Diaconis, was also a man of many talents. He had been a magician until the age of 24, when he became bored with performing and, in rapid order, became a leading statistician and joined the Stanford faculty. When De Veaux told Diaconis about his dancing career, Diaconis wished him luck but also, with great perspicacity, made sure to mention that if performing didn’t quite work out, the door back into statistics would be open.

That day came. De Veaux said, “I’m a firm believer in left brain/right brain balance. Dance is a little like baseball in that ability has very little correlation with intelligence. You meet all sorts of interesting people, but after only a few months on tour, I was starved for more left-brain activity. I started reading bridge columns and doing crossword puzzles during the long van rides between gigs. In the end, I was very satisfied when I went back into statistics.”

With the same energy he poured into dancing, De Veaux has amassed a mountain of professional achievements since he earned his PhD in statistics from Stanford in 1986. He has had 26 consulting clients—or 27 if you count the Grateful Dead—including Cardinal Health, American Express, Hewlett-Packard, Alcoa, and other Fortune 100 and Fortune 500 companies. His teaching credits include stints at Williams College, Princeton University, Université René Descartes, and The Wharton School. He is the coauthor of five statistics textbooks, with a new one, *Modern Statistics and Probability for Scientists and Engineers*, in the works. He has penned dozens of articles in juried journals and conference proceedings and authored 15 additional articles in un-refereed outlets. And he holds two patents.

In the midst of achieving this long list of professional credits, De Veaux married fellow dancer Sylvia Logan (he jokes he was thrilled to be the one straight guy in her dance class at Stanford). The two danced together professionally in Utah and, later, Philadelphia. De Veaux then went back to statistics full time, while Sylvia continued dancing professionally with the Jennifer Muller and The



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With the same energy he poured into dancing, De Veaux has amassed a mountain of professional achievements since he earned his PhD in statistics.

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Works Company until 1989. She then retired to help raise their four children: Nick (25), Scyrine (23), Frederick (21), and Alexandra (19).

But to get a good picture of whole-brained Dick De Veaux, you have to keep track—as he did and does—of nurturing his right-brain activity. Until three years ago, he also taught dance at Williams College during the school’s three-week Winter Study Course. Soon after arriving there, he found three faculty members who also loved doo-wop, giving his performer-at-heart an outlet until the aforementioned loss of his baritone to tenure at another college.

He has been taking voice lessons and singing classically for 30 years. The three times he has stayed in Paris, he has performed with the Choeur Vittoria ([www.choeur-vittoria.fr](http://www.choeur-vittoria.fr)), including performance tours as far away as Morocco and Senegal. Even when he is working and living in Williamstown, he sings with the University Chorus and devotes 7–10 hours a week to singing.

De Veaux will tell you that teaching statistics is also an outlet for him, as a born performer. After recounting his dance and musical credits, he recounted:

Teaching seems to be a need of mine. My parents tell the story of how I began teaching at the age of four. Like many of my colleagues, I was quite mathematical at an early age, but none of my friends knew how to count or what cards were or how to play with them. I had started playing poker and, since I wanted poker buddies, I had to start by teaching them to count.

I just love to teach. I’m passionate about statistics, itself, as a subject and getting people excited about it, in part, taps into my need to perform.

I also love the statistical consulting I do. Yes, being asked to help out Mickey Hart of the Grateful Dead was no doubt my wackiest gig, but they all are interesting. Every problem has its wrinkles and interests. I love problem solving and also talking to people about their problems. I think it’s where my



De Veaux at Stanford with his wife (in white) Sylvia Logan (Stanford '78)

true talent lies. I’m really a business therapist. I ask my clients about their problems and I help them solve them, usually by starting out and asking many questions. After a while, we come up with a plan of attack for figuring out how to get at the root of their problem. Often, it’s an experimental design to collect the right data or a more involved data analysis that will help them.

Consulting is half teaching and half therapy. The mistake many younger statisticians make is they want to immediately solve the problem by cramming it into something that they know how to solve. That never works. Therapists don’t work that way. You have to listen. Don’t try to reduce the problem to mathematics or statistics too quickly because there are always other issues. What you thought was the problem might turn out only to be part of a much larger scenario.

De Veaux’s advice to younger statisticians? He says, “Get your hands dirty as often as you can. Plunge into a problem with a big data set. That’s the place to get the experience. This is an amazing time to be a statistician. We are in the news, we are hot, and we are in demand. This is the time to capitalize on that.” ■

# SPAIG Finds Statistical Community Slightly Shaken, Not Greatly Stirred Regarding Big Data

Barry Nussbaum, SPAIG Committee Chair

In last October's issue of *Amstat News*, the SPAIG Committee announced its intention to look at two pervasive concerns of the statistical community: Big Data and declining response.

SPAIG (Statistical Partnership among Academia, Industry, and Government), by its very name, is concerned with the collaborative efforts of academe, industry, and government. As Big Data concerns seem to encroach upon the statistical field, SPAIG is concerned with statisticians' involvement with the computer experts who are increasingly collecting and analyzing Big Data.

So, our committee, with the help of additional ASA members

who responded to our October notice, distributed a pilot set of questions. As with most pilots, we started with a small, nonscientific set of two questions for a handful of statisticians, balanced across academe, industry, and government. The questions (forming probably the smallest questionnaire you'll ever see) were:

1. *I think big data are* (answer all that apply) –

- a. A real threat to the statistics community (y/n)
- b. A major innovation requiring advanced computer skills (y/n)
- c. Just another passing fad (y/n)

## COMMENTS:

2. *In response to big data* (answer all that apply) –

- a. My office has done nothing yet (y/n)
- b. My office has assigned big data projects to our computer whiz kids (y/n)
- c. I am screaming that they better be good statisticians too (y/n)

## COMMENTS:

And what did we learn? The questions were certainly on people's minds and appeared salient. The statistics community is concerned about Big Data, convinced it is not just a passing fad, but sees no cause to get head over heels excited either. The folks who offered comments were somewhat more diverse, with remarks ranging from "no threat to statistics" to "disciplines will move on without our help." Some comments noted Big Data provides "more opportunities (for statisticians)" and suggested that proactively "we should jump on the bandwagon in collaborating with other disciplines."

Well, collaboration is what the SPAIG committee, and indeed statistics, are all about. Our next step will be to formalize our little survey and get a more representative pulse of our profession. It's time to get into the sandbox with the Big Data gurus. Many of you already have!

Contact Barry Nussbaum, SPAIG Committee chair, at [Nussbaum.barry@epa.gov](mailto:Nussbaum.barry@epa.gov) or (202) 566-1493 with questions, comments, or concerns. ■

## SAVE THE DATE

The Department of Statistics at  
**BRIGHAM YOUNG UNIVERSITY**  
presents the  
**40th Annual Summer Institute  
of Applied Statistics**

June 17 - 19, 2015

**Hierarchical Modeling and  
Analysis for Spatial Data**

**Dr. Sudipto Banerjee**

Professor and Chair  
UCLA Department of Biostatistics



For questions regarding SIAS,  
please contact Amy Royer at:  
(801) 422-4506  
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Registration can be done online at  
<http://statistics.byu.edu>  
Early registration deadline is  
May 29th, 2015

# GAO to FBI: More Focus on Statistics

*Both agencies acknowledge help of ASA forensic science committee*

The U.S. Government Accountability Office (GAO) released in December 2014 its report on the scientific approaches in the FBI investigation of the 2001 anthrax attacks. As the title indicates, *ANTHRAX: Agency Approaches to Validation and Statistical Analyses Could Be Improved* ([www.gao.gov/assets/670/667671.pdf](http://www.gao.gov/assets/670/667671.pdf)), the GAO recommended that the FBI develop a framework for validation and statistical approaches for future investigations, with which the FBI agreed.

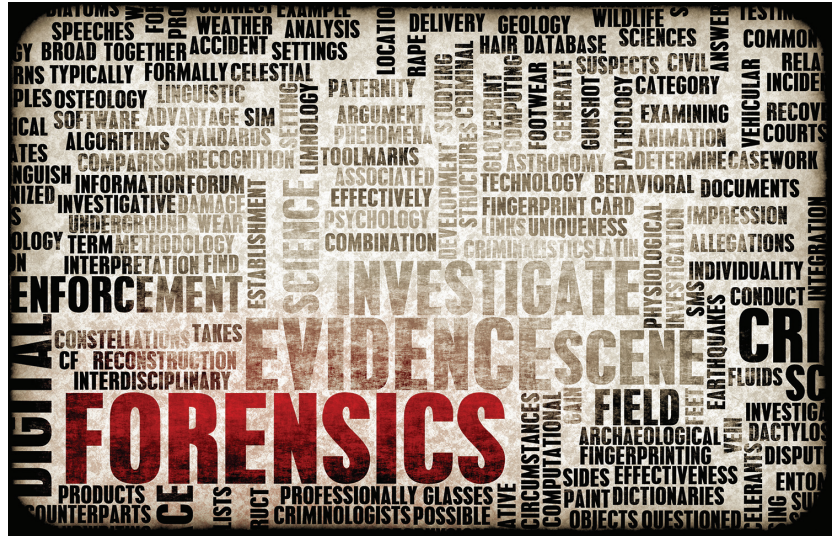
Early in 2013, the GAO requested help from the ASA Ad Hoc Advisory Committee on Forensic Science in reviewing statistical aspects of the GAO's planned methodology for their investigation and a draft of the final report. The committee's role is acknowledged in the GAO report.

Karen Kafadar, chair of the ASA forensic science committee, welcomed the GAO engagement: "The fact that an important government agency like GAO contacted the ASA for its statistical expertise is a positive development for our profession. And the willingness of our subcommittee to provide this expertise, amidst their other duties, is highly commendable. Statisticians are valuable in all areas of science, including forensic science, which this interaction demonstrates."

The GAO report also discusses the FBI laboratory's efforts to increase its statistical expertise. They cite an FBI official who described efforts to build formal forensic statistical expertise both internally and externally through a visiting scholar program, a working relationship with members of the ASA forensic science committee, and engagement with other federal agencies.

Kafadar and Hal Stern, committee vice chair, acknowledged this working relationship, which included two visits in 2013 to the FBI laboratory and subsequent discussions. Stern said, "Committee members have enjoyed interacting with FBI scientists. We have expressed our willingness to provide statistical support for forensic science research projects and hope that the FBI will take us up on our offer."

After a 2011 National Academy of Sciences (NAS) study—which the FBI commissioned—concluded it was not possible to definitively determine the origin of the bacterium used in the 2001 attacks, members of Congress asked the GAO to independently investigate scientific and technical issues the NAS was not asked to review.



The GAO's focus was the FBI's genetic test development process and statistical analyses. As the GAO report summarizes, "The genetic tests that were conducted by the Federal Bureau of Investigation's (FBI) four contractors were generally scientifically verified and validated and met the FBI's criteria. However, GAO found that the FBI lacked a comprehensive approach—or framework—that could have ensured standardization of the testing process."

The specific recommendations are for the FBI to work with the Department of Homeland Security on verification and validation framework to be applied at the outset of an investigation involving any microbial pathogen. "It should (1) incorporate specific statistical analyses allowing the calculation of statistical confidence for interpreting the results and specifying the need for any additional testing to fully explore uncertainties relative to the type of genetic test being validated and (2) [be] applied and adapted to a specific scenario and employ multiple contractors."

The report also recommends the FBI "establish a general statistical framework that would require input from statistical experts throughout design and planning, sample collection, sample processing, sample analysis, and data interpretation that can be applied and adapted to address a specific scenario involving an intentional release of *B. anthracis* or any other microbial pathogen." ■



# Peter (Tony) Lachenbruch

James Cochran

*In the second installment of the Amstat News series of interviews with ASA presidents and executive directors, we feature a discussion with 2008 ASA President Peter (Tony) Lachenbruch.*

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The ASA is the greatest home and support for statisticians we have.

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Peter (Tony) Lachenbruch

**Q** Thank you for taking time to talk with me, Tony. During your childhood, were there any clues that you would become a statistician?

**A** Not really, but I did enjoy mathematics. I didn't take trigonometry until college, so my math development was a bit delayed. My entry into statistics was prompted by an ad in the American Math Monthly offering scholarships, so I contacted Frank Massey. I had a course in Math Stat as a senior at UCLA that was taught by Paul Hoel and Tom Ferguson from Hoel's book *Introduction to Mathematical Statistics*. I remember that a senior math major fainted during the first exam and Tom and I carried her out of the room. I had already finished the exam, so I didn't need to re-enter the classroom.

**Q** You have worked on an incredible array of statistics projects. What is your most memorable project you have worked on as a statistician?

**A** I have had a long-standing relationship with a group of rheumatologists—about 30 years—so that would be my most memorable project. The project began when I was at the University of Iowa, and it continued after I got to UCLA and then went to FDA. We were developing measures of improvement in juvenile dermatomyositis. There are six core measures that can be combined to give an index. Some of these are nonlinear and some are CART based. I learned about CART and propensity scoring through this project.

**Q** What surprised you most about being president/executive director of the ASA?

**A** The amount of support available from the ASA office. I have also been in leadership positions with other statistical groups that did not offer nearly as much support. I became president-elect when Ron Wasserstein was first appointed and learned a great deal from him—as we both learned simultaneously. Bill Smith was in his last year as executive director and passed on a lot of useful information. Bill had been in office for some time and knew the ropes quite well.

**Q** What particularly humorous or unusual incident happened to you while you were president/executive director of the ASA?

**A** Part way through my tenure, I received a letter from a colleague and friend asking about the status of a very large donation in her will. I referred it to Ron Wasserstein and the issue was then sorted out. This inspired me to make a donation to the ASA in my will.

Another less pleasant incident occurred when a person took offense at some ASA policy and wrote me in all CAPS telling me what rats the ASA and I were for not seeing things his way. After I responded a few times, I asked Ron what I should do and we came up with a solution: stop trying to explain the policy.



Lachenbruch during the 2008 Joint Statistical Meetings Presidential Address

**Q**What are your feelings about the future of the ASA? Do you have any particular concerns about the discipline of statistics or how the discipline is perceived by the general public?

**A**The ASA is the greatest home and support for statisticians we have, and we must support it. We also need to increase the general public's understanding of randomness. A large  $n$  means nothing if the sampling is biased. One of my great irritants are the ads that talk about a clinical trial that showed a drug was wonderful, not noting the number of trials that had been conducted. A single 'significant' trial out of 10 is not much to write home about.

**Q**What misconceptions about statistics held by the general public would you like to see addressed?

**A**More public information about issues in sampling and study analysis. Too many ads on TV talk about a study that showed something—but didn't say how many studies didn't show anything. Another issue I encountered while I was at the FDA was a study that changed the endpoint after the data were collected. The original study had used a nonparametric test and changed to a bootstrap test. There was a very large outlier in the control group that made significance in the bootstrap a sure thing, while the nonparametric test properly discounted it. The sponsors figured this out and were quite bitter when we didn't allow them to change the endpoint.

**Q**Is there anything that makes you particularly optimistic about the ASA's future?

**A**Yes, our younger members and their enthusiasm. I think these people will explain (much better than I have) these issues. ■

**Tony Lachenbruch** earned a BA in mathematics from the University of California at Los Angeles (UCLA) in 1958 and an MS in mathematics from Lehigh University in 1961. He then returned to UCLA and completed his PhD in biostatistics in 1965, after which he joined the faculty of The University of North Carolina, rising to the rank of professor in 1976. From 1976 through 1985, Tony was professor and head of the department of biostatistics in the department of preventive medicine and environmental health at the University of Iowa. He then returned to UCLA as a professor in the department of biostatistics in the school of public health, and he chaired that department during the 1991–1992 academic year.

At that point, Tony joined the U.S. Food and Drug Administration. While at the FDA, he served as chief of the biostatistics branch of the Division of Biostatistics and Epidemiology Branch in the Center for Biologics Research and Review through 1999, and then served as a senior biological research scientist and director of the Division of Biostatistics in the Center for Biologics Research and Review from 1999 through 2006. In 2006, Tony became a professor in the department of biobehavioral and population sciences at Oregon State University, the university from which Tony now holds the title of professor emeritus.

During Tony's long career in biostatistics, his research interests have included statistical epidemiology and discriminant analysis, along with applications in rheumatology, cardiology, and psychiatry. Much of his efforts have been devoted to the development of statistical methods for drug research, selecting predictor variables when missing data are present, and regulation of pharmaceuticals. He also has worked on applications to rheumatology methods. Tony has authored or coauthored more than 200 articles and the book *Discriminant Analysis*.

Tony has received several important awards and honors. In 1971, he received the APHA (American Public Health Association) Mortimer Spiegelman Award; in 1991, he was named the Lowell J. Reed Lecturer by the APHA Statistics Section; in 1997, he received the FDA Award of Merit; and he received the FDA Center for Biologics Evaluation and Research Center Director's Award for Distinguished Service in 2005. Tony was made a Fellow of the American Statistical Association in 1979, and, in 1983, he was elected to membership in the International Statistical Institute. In addition to serving as president of the ASA in 2008, Tony was president of ENAR in 1984 and WNAR in 2010.

Although Tony is now retired, he remains active professionally and continues to contribute to our discipline, serving on the editorial boards for *Statistics in Medicine*, *Statistical Methods in Medical Research*, and *The Stata Journal*.

Please return to this column next month, when we will feature an interview with 2003 ASA President Robert L. Mason.



# A Peek into the Largest, Fastest-Growing Undergraduate Statistics Departments

Statistics is the fastest-growing STEM major for 2010–2013. With a 95% increase in degrees granted from 2010 to 2013, it outpaced computer/information technology and administration and management environmental/environmental health engineering.

To find out how departments are keeping pace with this increased interest and where their students are going, we asked the heads of some of the largest and fastest-growing departments (see Table 1) to respond to five questions. Four of those departments are below. Stay tuned for more interviews in upcoming issues of *Amstat News*.

**Table 1**—Four of the Largest and Fastest-Growing Undergraduate U.S. Statistics Programs

Statistics Bachelor's Degrees	2011	2012	2013	2003–2013	2011–2013 Total Relative to 2003–2005 Total
University of Minnesota-Twin Cities	28	52	50	130	271%
Carnegie Mellon University	14	31	22	67	91%
Grand Valley State University	30	24	21	75	369%
University of California-Los Angeles	20	30	50	100	N/A

Download the PDF at [www.amstat.org/misc/StatsBachelors2003-2013.pdf](http://www.amstat.org/misc/StatsBachelors2003-2013.pdf) for the complete list of 130 universities that have granted bachelor's degrees in statistics.

## University of Minnesota-Twin Cities



Dennis Cook is professor and director of the school of statistics, University of Minnesota. He received the 2005 COPSS Fisher Lecture and Award and is a Fellow of the ASA and Institute of Mathematical Statistics. He is also an elected member of the International Statistical Institute.

**What do you believe is driving the growth in the number of statistics majors in your department? What are you doing (if anything) to recruit majors? How much longer do you expect such growth?**

There are myriad factors driving the growth in our majors, as well as our enrollments generally. Society is becoming more quantitative, high schools now routinely incorporate statistics and statistical ideas into their curricula, and Big Data is ubiquitous.

The demand is surely driven in part by the contemporary press: In an August 8, 2014, article in *The Wall*

*Street Journal*, E. Dwoskin wrote that after a couple years of experience, data scientists, essentially statisticians with excellent computing skills, could command salaries between \$200,000 and \$300,000. Promotions like the ASA's *This Is Statistics* campaign also are adding fuel to the progression, as is the impression that "statistics is sexy." Emphasis on STEM disciplines also could be contributing to our growth.

Other clues may be indicated by statistics for our program. In 2004, we had 34 undergraduate majors, while we have 224 today, for a 560% increase, most of which occurred in the past few years. Undergraduate enrollment at the university as a whole decreased over this time period by about 3%. Double majors comprise 20% of our total; evidently, many students think doubling with statistics will make them more desirable to employers or increase their chances of admission to graduate school. Forty-six percent of our majors are female, and 65% are international. The University of Minnesota's tuition for nonresident students, including international students, is relatively low. While this might account for a high percentage of international students generally, it does not explain why many of these students choose statistics as their major.

We have never actively recruited undergraduate majors, although we do participate in general recruitment events. Recent data indicate our growth trend is continuing. Last fall semester, we left a 5% enrollment increase on the table because we did not have the resources to cover the unexpected demand. For spring semester, our college allocated additional resources to cover the fall excess plus a bit more, but it appears we will have again underestimated by about 5%.

**What kinds of careers or graduate programs are your graduates moving on to? Who are the top recruiters?**

Historically, we have regarded statistics as primarily a graduate discipline, and the rapid growth of our major caught us a bit unprepared, so we have limited data on post-graduation status. Nevertheless, current data indicate more than 50% of our seniors will pursue graduate school in statistics or a related discipline and 30% will have jobs at graduation. We recently scored "Excellent" on the 2015 Quality Metrics Review of University of Minnesota Graduate Programs. The review showed particularly strong career placement rates for our graduate students, and we are working to achieve the same success for our undergraduates. We plan to improve our follow-up in the near future.

**How have you changed your curriculum to adapt to the data science era, and how will you use the ASA Curriculum Guidelines for Undergraduate Programs in Statistical Science? Have you considered starting a professional MA program?**

The ASA guidelines gave us a good starting point for several major changes we plan to introduce for fall 2015. Here are the key changes as summarized by our director of undergraduate studies, Sandy Weisberg:

- A bachelor's of statistical practice with extensive training in applied statistics at the level usually attained in a master's program. This degree is designed for those seeking employment as a statistician, but not a further degree in statistics. It also includes flexibility to add a supporting program.
- A bachelor's of statistical science that will have less applied statistics, but considerably more mathematics to allow students to compete for places in strong statistics graduate programs.
- Introduction of an advisory council and extension of our internship program to undergraduates to provide more opportunity for meaningful work experience, make connections between our students and the vibrant work environments in the Twin Cities area, and provide us with feedback to keep our program relevant.

We redesigned our master's program last year so it leans more toward a professional degree and provides more opportunity for mentored internships. This is on top of the data science MS degree we initiated last year in collaboration with computer science, electrical engineering, and biostatistics. The program will begin admitting students this spring. We also plan to have a joint degree with actuarial science by the fall of 2016.

**How have you managed the growth in the number of majors? Has the university allocated more resources (e.g., finances, space, personnel) to your department?**

Our growth in the number of majors has been accompanied by similar growth in the number of students in service courses. This overall growth has been managed by hiring non-tenure-track full-time teaching faculty, expanding the size of our classes to beyond reasonable capacity, increasing the number of teaching assistants and graduate instructors, and expanding the curriculum for our majors. We have been fortunate to hire strong teaching faculty. Our requests for additional funding/support have met with varied results. Unfortunately, because of collegiate priorities, it appears hiring teaching faculty has led, perhaps inadvertently, to a reduction in FTE [full-time equiva-

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**We would encourage students with a long-term interest in statistics to also pursue a related field.**

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lent] ladder-rank research faculty through retirements.

To sustain our curricular advances and accommodate further growth, we need to hire ladder-rank research faculty and ladder-rank faculty to lead our undergraduate program, but this also will hinge on collegiate priorities. We also hope to obtain help advising our majors, as our in-house advisors are seriously overburdened. Some universities offer statistics in very large classes, perhaps in excess of 200 students. So far, we have resisted that trend, but the pressure is building. Some variation of online learning is another option for programs with many students and limited resources, but the learning curve can be quite steep and costly to navigate.

**What recommendations do you have for students considering a major in statistics? Any advice for students already committed to a major in statistics?**

Anyone with an innate curiosity and an aptitude for quantitative thinking is a likely statistician. We would encourage students with a long-term interest in statistics to also pursue a related field because most statisticians are involved heavily with problems in the applied sciences. We have faculty with joint appointments in psychology and sociology. Other members of our faculty are deeply involved with statistical genetics, image analysis, biostatistics, climate statistics, and statistical problems arising in educational and psychological assessment.

The needs of students who seek employment immediately after a four-year degree are quite different from those continuing to graduate school. Our new undergraduate degree programs are designed to meet the requirements of both groups. We offer the potential for course work with prominent research statisticians and opportunities to network with a wide array of employers and individuals, and our classes are still relatively small.

## Carnegie Mellon University



Genovese



Nugent



Seltman

Christopher Genovese is the head of the Carnegie Mellon Department of Statistics. Rebecca Nugent and Howard Seltman are the co-directors of the department's undergraduate program and have both played a pivotal role in building such an outstanding program.

### What do you believe is driving the growth in the number of statistics majors in your department? What are you doing (if anything) to recruit majors? How much longer do you expect such growth?

Our internal data show much larger numbers and faster growth than the NCEES data shown in the table. The number of our undergraduate majors has roughly doubled since 2010 and has grown twenty-fold (!) since 2005. Part of this is attributable to a widening recognition among students that data-analysis skills and statistical thinking are potent tools that add value to many career paths. The rise of “data science” has only increased the excitement in this direction, which we would like to capitalize upon. Part of the growth in our program also may be due to AP Statistics, which has increased awareness of statistics as a field and viable major. We also believe part of our growth followed from our developing an engaging, high-quality curriculum with emphasis on modern methods, strong communication skills, and the analysis of data from real, interdisciplinary research problems (with no “textbook” data sets after the intro level).

One strategy we have used is to build on and highlight connections between statistics and other fields. We have joint majors with economics and machine learning (new this year). We also have new tracks within our major in neuroscience and statistical theory, along with a statistics-operations research track in the math department. At Carnegie Mellon, it is common for students to double major, and our program offers productive paths for students to explore the intersection between statistics and another field.

We expect the growth to continue for quite some time because the value of a good statistical education will only increase. We will foster this growth by keeping our program fresh and effective with outstanding classroom experiences.

### What kinds of careers or graduate programs are your graduates moving on to? Who are the top recruiters?

In recent years, roughly 10–20% of our primary majors have gone on to graduate or professional

school. Among the rest, the most common sectors in which our students get jobs are, in recent years, finance and banking, consulting and analytics, and management and marketing. It is becoming more common for our students to get jobs labeled “data scientist.” There are also a reasonable number who work in industrial research, pharmaceuticals, software companies, and teaching.

### How have you changed your curriculum to adapt to the data science era, and how will you use the ASA Curriculum Guidelines for Undergraduate Programs in Statistical Science? Have you considered starting a professional MA program?

Our goal has always been to train students with the skills they will need to be effective, practicing statisticians, which is an essential part of data science as it is currently understood. For example, we emphasize experiential learning through the use of real data sets in methods classes and hands-on practice with consulting, visualization, and computing.

In recent years, we have strengthened the role of computing in our undergraduate program. We now require a course in statistical computing of all our majors. Our core computing course gives about equal attention to classical computational statistics (optimization, simulation, Monte Carlo), programming and software engineering in R, and databases and data management. We also offer courses in visualization, data mining, and advanced statistical computing. This reflects changes in the scope of problems students will face and in the range of skills they will need in their careers.

In our advanced methodology (capstone) courses, we continue to include assignments and projects that use large, real data sets and modern methods with a variety of scientific and modeling contexts. All these courses emphasize statistical thinking, computing practices, and analysis grounded in the applied questions of interest. And in all of them, students sharpen their communication skills by preparing substantial written reports or giving oral presentations of their work, and often both.

We feel our efforts so far are directly aligned with the ASA guidelines.

We already have one professional MS program (in statistical practice) and are developing a second one (a multidisciplinary program in data science).

### How have you managed the growth in the number of majors? Has the university allocated more resources (e.g., finances, space, personnel) to your department?

Mostly by using duct tape to keep the seams from bursting. We are pushing capacity in many of our courses, which makes it difficult to add the new courses we would like to. Keep in mind that this change is not just from the number of majors, but also from the tremendous increase in the number of non-majors across the university who are taking statistics courses.

We have quite a few courses targeted to help students and programs in other disciplines.

We have redesigned our advising model several times, both to make it more efficient in the face of growth and to more effectively target advice to the students' needs. Accommodating growth requires more than just adding faculty for courses; it is also necessary to think about how to best advise students in such an interdisciplinary subject that draws people from many areas and interests.

Several new teaching-track faculty members also have joined the department, which has certainly helped, though we are hoping to add more personnel in the near future. The university is sympathetic ... and discussions continue.

### What recommendations do you have for students considering a major in statistics? Any advice for students already committed to a major in statistics?

Get hands-on experience with real data through internships, courses, and even just for fun. Work toward developing strong oral and written communication skills; their value cannot be overemphasized. It also never hurts to get as much programming and mathematical experience as you can.

For students in both groups, look for statistical questions and issues that arise in areas that interest you. These can give you concrete examples with which to frame what you are learning, give you a chance to practice doing what statisticians do, and can spur you to explore new ideas and make new discoveries.

## Grand Valley State University



Paul Stephenson joined the faculty at Grand Valley State University in 1994 and is a professor of statistics. He has served as the statistics department chair since it was established in 2001.

### What do you believe is driving the growth in the number of statistics majors in your department? What are you doing (if anything) to recruit majors? How much longer do you expect such growth?

Significant media attention has been focused on the emerging availability of Big Data and the need for analysts to discover useful information from these massive reserves of data. This demand for data scientists has been a catalyst for growth in student interest in our statistics major and applied statistics minor.

While there are a variety of reasons for this growth, some of the reasons include the following:

- The statistics faculty make a real commitment to engage their students
- Our department offers flexible programs that allow students to take coursework germane to their interests
- Our faculty make a concerted effort to reach out to students who demonstrate interest and aptitude
- Our department spearheads programming (such as the Michigan Statistics Poster Competition, walk-up events at Science Olympiad, and Super Science Saturday events) that encourage students from 1st grade to 12th grade to participate in activities geared at statistical thinking
- Our department hosts a Statistics Career Day every three years

While I expect that the growth will level off, I do anticipate current demand for statisticians will remain high.

### What kinds of careers or graduate programs are your graduates moving on to? Who are the top recruiters?

Roughly half our students pursue a graduate degree after completing the major. Since some of our students double major in complementary degrees, our graduates have enrolled in a variety of graduate programs, including statistics, biostatistics, mathematics, data analytics or science, actuarial science, economics, business, psychology, and epidemiology. The application areas that employ the highest number of GVSU statistics graduates include the bio/medical sciences, business/industry, actuarial sciences, and agencies associated with the government.

### How have you changed your curriculum to adapt to the data science era, and how will you use the ASA Curriculum Guidelines for Undergraduate Programs in Statistical Science? Have you considered starting a professional MA program?

The statistics major at GVSU requires a number of applied statistics courses. As such, we were able to quickly adapt our curriculum to the data science era by offering more elective courses that infused data science content. That being said, our department is strongly considering a second major with an increasing emphasis on Big Data analytics. Our department already offers a professional science master's program in biostatistics. This program is designed to integrate graduate-level biostatistics coursework, an industrial internship, and professional skills content that prepares students for the variety of career pathways associated with the life science and health science industries.



**How have you managed the growth in the number of majors? Has the university allocated more resources (e.g., finances, space, personnel) to your department?**

The demand for statistics courses has been very high, and our administration has steadily increased our resources consistent with our growth. Once the administration allocates our annual resources, we must do our best to use those resources efficiently and meet our unit's overall responsibilities in instruction, research, and service. Our department has worked hard to develop and employ hiring strategies that meet the diverse demand for statisticians (both in teaching and scholarship) within the GVSU community. In an effort to meet course demands at the undergraduate and graduate levels, we have carefully balanced the combination of tenure-line, affiliate, visiting, and adjunct faculty.

**What recommendations do you have for students considering a major in statistics? Any advice for students already committed to a major in statistics?**

I would encourage every undergraduate student to do the following:

- Broadly explore a variety of topics within statistics and pursue at least one minor in a discipline outside of statistics (e.g., computer science and mathematics). Don't be too quick to specialize.
- Strongly consider pursuing an internship experience.
- Build a relationship with at least one of your favorite professors and ask them to serve as your mentor.

## University of California at Los Angeles



Frederic Paik Schoenberg is chair of the UCLA Statistics Department and editor of the *Journal of Environmental Statistics*. His research is in on-point processes and environmental applications, and he wrote *An Introduction to Probability with Texas Hold'em Examples*.

**What do you believe is driving the growth in the number of statistics majors in your department? What are you doing (if anything) to recruit majors? How much longer do you expect such growth?**

The main driver is the job market. Our graduates are getting excellent jobs in industry with a statistics degree. Businesses throughout the country are form-

ing analytics groups and seeing the value of data analysis. They are therefore hiring statisticians at a high rate and that is fueling our majors. I expect this growth to continue for five years at least. Our department does a lot of outreach to try to recruit majors, including a stats club on campus, outreach to local high schools and community colleges, and our annual DataFest.

**What kinds of careers or graduate programs are your graduates moving on to? Who are the top recruiters?**

About 15–20% of our undergraduate majors go on to graduate school, and most of the others get jobs in industry—in a wide variety of areas. Many seem to go into online or tech companies like Google, internet startups, etc.

**How have you changed your curriculum to adapt to the data science era, and how will you use the ASA Curriculum Guidelines for Undergraduate Programs in Statistical Science? Have you considered starting a professional MA program?**

We proposed a professional master's program in applied statistics several years ago, and it is still pending approval. It will feature evening classes so workers in local business can enroll. We always have been a department focusing on applied statistics and have increased our instruction of machine learning, computer vision, and the analysis of Big Data in recent years.

**How have you managed the growth in the number of majors? Has the university allocated more resources (e.g., finances, space, personnel) to your department?**

The university has allowed us to hire in recent years. In 2010, we had 9.5 FTE [full-time equivalent]. Now, three years later, we are at 13.5. The growth has been in ladder faculty at the assistant professor level, and we also have increased our number of lecturers by one over this period.

**What recommendations do you have for students considering a major in statistics? Any advice for students already committed to a major in statistics?**

I think students should try to get a broad education. For students majoring in statistics, it really helps to get as solid a mathematical background as possible, and computer science skills are also extremely valuable. Having a broad range of skills can set students apart from their peers, and I think a broad knowledge base is going to become increasingly important in analytics applications. ■



# FY15 Budgets for NIH, NSF, Federal Statistical Agencies Finalized

Steve Pierson, ASA Director of Science Policy

The Senate extended its adjournment date for the 113th Congress to finalize the fiscal year 2015 (FY15) budgets for most of the federal government. (The Department of Homeland Security is on another continuing resolution through February.) One of the few bright spots was NSF, which received a 2.4% increase over its FY14 budget.

## NIH and NSF

The NIH received an FY15 budget of \$30.1 billion, which is a half percent above its FY14 level and means NIH loses purchasing power due to inflation. In addition to the \$30.1 billion, the NIH received \$240 million for Ebola research funding. For an indication of what this level might mean for proposal success rates, consider how the FY14 proposal success rates fared with a 2% increase over the FY13 level (Table 2). For a more in-depth analysis of the FY15 NIH budget, see the links (e.g., from *Science* and COSSA) in the blog entry at <http://bit.ly/1hVjZTv>.

The FY15 NSF budget is \$7.3 billion. Besides the bill providing an increase maintaining NSF's purchasing power, the bill had good news for what it didn't include: a cut for the Social, Behavioral, and Economic (SBE) Sciences Directorate. The House science committee had passed a bill that would have cut the SBE budget by 40% and was determined to see at least some of that cut realized in the appropriations process. The bill did, however, specify that none of the increase could be provided to the Geosciences Directorate or SBE Directorate. The bill also directs NSF to increase its funding of the BRAIN initiative by \$21 million. For FY14, the overall NSF proposal funding rate was 23%, up a percentage point from FY13, but below the FY12 level of 24%.

## Federal Statistical Agencies

The U.S. Census Bureau and its stakeholders received both good and disappointing news. Its budget was increased 15% for the ramp up to the 2020 decennial census, but this level is \$123 million short of its requested level. As a result, the Census Bureau will likely have to scale back significantly the planned testing for FY15, which could potentially add to the overall price tag for the 2020

**Table 1**—Final FY15 Budgets for NIH, NSF, and 13 Primary Statistical Agencies

	FY11	FY12	FY13	FY14	FY15	
					Final	Change from FY14
<b>Research Agency (amounts in millions of dollars)</b>						
NIH	30688	30623	29300	29934	30084	0.5%
NSF	6913	7033	6884	7172	7344	2.4%
<b>Statistical Agency (amounts in millions of dollars)</b>						
BEA	93.2	92.2	89.8	95.0	96.0	1.1%
BJS	60.0	41.3	41.3	45.0	41.0	-8.9%
BLS	610.0	609.0	577.2	592.2	592.2	0.0%
BTS	27.0	25.2	26.0	26.0	26.0	0.0%
Census	1152.0	942.4	841.7	945.0	1088.0	15.1%
EIA	96.0	105.0	99.5	117.0	117.0	0.0%
ERS	81.8	77.7	71.4	78.1	77.7†	-0.5%
NASS	156.4	158.6	166.0	161.2	163.2†	1.2%
NCES	247.0	247.0	226.0	235.0	232.0	-1.3%
NCHS	138.7	138.7	138.7	140.0	140.0†	0.0%
NCSES	42.0	43.3	41.6	47.1	58.3	23.7%
ORES	29.0	29.0	27.5	29.0		
SOI	39.0	38.7	33.1*	35.0	36.2	3.4%

\* The drop in the SOI budget from FY12 to FY13 is partially due to a realignment of resources.

† The FY15 ERS, NASS, and NCHS budgets are the levels comparable with previous years and do not reflect accounting changes made for FY15. See discussion in the text.

**Table 2**—NIH Funding Rates for Research Projects

	FY13	FY14
NIH Budget	\$29.3 B	\$29.9 B
Research Proposal Success Rate	16.8%	18.1%
New R01	14.3%	15.4%
Renewing R01	31.4%	34.6%

census. The good news is that the final bill does not include a House provision to make the American Community Survey (ACS) voluntary. For further commentary on the FY15 Census Bureau budget, follow the links in the blog entry at <http://bit.ly/1DEkhjX>.

The Bureau of Labor Statistics (BLS) was flat funded at \$592 million from FY14, which will likely mean more difficult cuts for BLS. Because budget is 3% below its FY10 and FY11 levels—more than 10% lower taking into account inflation—it already has cut many surveys in the last few years. To prevent further cuts, advocates were hoping a modest increase for FY15.

The budget for the Bureau of Justice Statistics (BJS) was cut 9% to \$41 million.

The Economic Research Service (ERS) budget went up on paper to \$85.4 million, but \$7.7 million was for USDA accounting changes, so the level reported in Table 2 is comparable with the FY14 and prior levels. Similarly for the National Agricultural Statistics Service (NASS), its budget went up 7%, but subtracting the increase of \$9.2 million for accounting changes, it sees a 1% increase.

The National Center for Health Statistics (NCHS) also underwent accounting changes—the establishment of a Working Capital Fund to cover costs previously covered by the CDC—that see its budget increase to \$155.4 million. In FY14 comparable values, however, it is flat-funded at \$140 million. (For the policy wonks, the NCHS budget was switched from being funded by the TAP Evaluation fund to a direct appropriation.)

The Bureau of Economic Analysis (BEA) also is likely to be affected negatively by its 1% increase because it has sought an additional \$8 million for FY15 to cover relocation and renovation expenses.

Thanks in part to the increase for NSF overall, the budget for the National Center for Science and Engineering Statistics (NCSES) increased to \$58 million, much of which will be used to enhance the Survey of Doctorate Recipients.

The other federal statistical agencies generally see their budgets kept flat: Energy Information Administration (EIA), National Center for Education Statistics (NCES), and the Internal Revenue Service Statistics of Income Division (SOI).

The Bureau of Transportation Statistics (BTS) is funded through the Highway Trust Fund, so is not

part of the appropriations process. It is due to be reauthorized for the next several years this spring.

The level for the Social Security Administration Office of Research, Evaluation, and Statistics (ORES) was not available as of the writing of this article.

## Issues to Watch in New Congress

The budgets for NIH, NSF, and the federal statistical agencies will likely be largely flat for FY16 with sequestration limits back in place. The mandatory requirement of the ACS also will be an issue in both the appropriations and authorization process with the Republicans in control of the Senate and new committee chairs in the House. The chair of the House Oversight and Government Reform Committee, Jason Chaffetz (R-UT), was a cosponsor of a bill to make the ACS voluntary and a bill to eliminate almost all the Census Bureau's programs except for the decennial census. The chair of the House appropriations panel that determines the Census Bureau budget, John Culberson (R-TX), also sponsored the voluntary ACS bill. The new chair of the Senate committee with oversight of the Census Bureau, Sen. Ron Johnson (R-WI), asked a number of questions about the ACS during an oversight hearing last year, but is not a cosponsor of the Senate voluntary ACS bill introduced by Sen. Rand Paul (R-KY).

Congress also will take up NSF reauthorization again. In the 113th Congress, the House and Senate NSF reauthorization bills were very different. The House version championed by Lamar Smith (R-TX), chair of the House science committee, would have mostly flat-funded NSF, cut the SBE directorate by 40%, and added requirements for the funding of awards. Sen. Jay Rockefeller (D-WV), then chair of the Senate science committee, introduced a bill that had generous increases for NSF and was supportive of SBE and NSF's merit review process. It's not clear where the new chair of the Senate science committee, Sen. John Thune (R-SD), stands on the issue.

The House also is likely to take up a science committee bill it passed in 2014 called the Secret Science Reform Act. The bill prohibits the Environmental Protection Agency from issuing any new regulations unless the underlying scientific and technical information is publically available to the extent

allowed by law. ASA President David Morganstein wrote to House leadership in September expressing major concerns with the bill for its disregard of confidentiality agreements and, more generally, scientific complexities. Several senators introduced a companion bill that was not advanced. The bill was broadly opposed by the scientific community.

In the authorizations process, the ASA will be watching closely the reauthorization of the Department of Education Institute of Education Sciences (IES), under which sits NCES and three research centers. In the 113th Congress, the House passed an IES reauthorization bill that would have weakened NCES by transferring appointment of its commissioner from the president to the IES director and transferring some NCES responsibilities to IES. With the Senate Health, Education, Labor,

and Pension Committee rubber-stamping the bill in September, it was widely expected that both chambers would approve the bill in the lame-duck Congress, but the concerns of a few senators for federal funding of education research is believed to have precluded the bill becoming law.

It also is possible that heads of BJS and NCES will be appointed early in the new Congress. BJS has had an acting director since December 2012 and NCES since late 2013. As of 2012, these positions no longer require Senate confirmation. SOI also is expected to name its new director early in 2015. ■



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# PUBLIC RELATIONS CAMPAIGN *NOW IN SECOND YEAR*

*ASA seeks members' assistance to spread word*

Jeff Myers, ASA Public Relations Coordinator

The ASA's public awareness campaign—*This Is Statistics* ([www.thisisstatistics.org](http://www.thisisstatistics.org))—returns in 2015 for its second year of promoting the virtues of careers in statistics to high-school and college undergraduate students.

Renewal was made official in November when the members of the ASA Board green-lighted the continuation of the campaign and the relationship with Stanton Communications, the ASA's public relations firm, for the second year.

As this year gets under way, ASA President David Morganstein is asking association members to share news of the campaign and its promotional resources with students, parents, teachers, and education administrators in their communities.

## A Look Back

Most of 2014 was focused on developing the campaign. It began with interviews with key ASA volunteer leaders, followed by the building of an informational website that serves as the campaign's communications hub and then the official launch on August 19.

By the end of the year, the campaign had made considerable progress in sharing information about statistics careers. The website had drawn more than 17,000 visits from 13,000 unique visitors. Its social media following had grown tremendously—more than 1,300 Facebook likes and 900 Twitter followers—and the statistician video profiles had been viewed more than 10,000 times.

The year ended with the biggest success for the awareness campaign to date when *The Washington Post* published a major feature article written by reporter Brigid Schulte, who writes about work-life issues for the paper. Schulte's article, which appeared on the front page of the Sunday business section on December 21, focused on the high number of women in statistics and how the field is different from other science, technology, engineering, and mathematics (STEM) fields.

Under the title "Women Flocking to Statistics, the Newly Hot, High-Tech Field of Data Science" (<http://wapo.st/1v5EtlG>), Schulte wrote the following about the higher rate of women in statistics versus other STEM fields:

As the demand explodes for workers in high-tech professions who can analyze the staggering amounts of raw digital data produced every year, women barely register.

Except in one field: statistics.

The discipline, which used to have all the allure of an actuarial table, has been rebranded as part of the hot high-tech field of data science, or Big Data.

This is where the jobs are. It will take an estimated 2 million new computer scientists, mathematicians, engineers and statisticians to sort through the

## Statisticians aren't who you think they are.

They are diverse, and so are their jobs.



### Chandra Erdman, U.S. Census Bureau

Chandra had her pick of prestigious positions when she graduated with a PhD in statistics from Yale. After considering tenure-track university teaching jobs and positions with corporate firms like Goldman Sachs, she chose to join the U.S. Census Bureau. Chandra explains why she loves being a...

[Read More >](#)

Visit [thisisstatistics.org](http://thisisstatistics.org) and share with your chapter or section the video of Chandra Erdman discussing why she loves being a statistician.

A blue banner with a white circular photo of a smiling woman. The text reads: "Is a career in statistics right for you? Find out today! Take Our Quiz".

Is a career in statistics right for you?

Find out today!

Take Our Quiz

Invite family members—children, nieces, nephews, and grandchildren—to take the online quiz: Is a career in statistics right for you?

cacophony of data and find meaningful patterns that will help, among other things, to target customers, track diseases and find crime hot spots.

Here, women are a growing force. More than 40 percent of degrees in statistics go to women, and they make up 40 percent of the statistics department faculty poised to move into tenured positions. Several prominent female statisticians run the departments of major universities and lead major data analytics labs for industry and government. One, Susan Murphy, received a MacArthur 'Genius Grant' last year.



This major article infused significant momentum in the awareness campaign and set the stage for continued campaign growth and success in 2015.

## A Look Ahead

Along with the ongoing focus on encouraging high-school and college undergraduate students to learn about statistics careers, the ASA and Stanton will be undertaking a trio of new initiatives to create newsworthy information and resources that can be used to build awareness of the campaign and statistics. The likely initiatives are:

- Research augmented by a possible survey that will examine where recent statistics bachelor's and master's graduates are working and the nature of their job focus
- A work group of women prominent in the fields of statistics and Big Data that will develop a statement about the need to attract more women to data science
- Creation of a toolkit that ASA sections, chapters, and individual members can use to promote *This Is Statistics* in their hometowns and at career, science, or math day events at local high schools and colleges

Stanton will use the findings from the first two initiatives to create media outreach campaigns. These mini-campaigns will educate journalists about the field of statistics and the abundant career opportunities awaiting students into the foreseeable future.

Meanwhile, the promotional toolkit will help various ASA audiences take the campaign's key messages to their constituencies, communities, and even their own family members. Stanton and the ASA will be gathering feedback about useful promotional resources from the boards of ASA sections and chapters. Individual members can submit resource ideas to ASA Public Relations Coordinator Jeff Myers at [jeffrey@amstat.org](mailto:jeffrey@amstat.org).

## Getting Involved

Delivering the campaign's key messages to the local level will require the active, hands-on involvement of ASA members from coast to coast.

"It is critical that ASA members get involved in this awareness campaign," said Morganstein. "A thousand voices speaking as one are more powerful and effective than a single voice. By spreading the word about the

*This Is Statistics* campaign, you will make new connections that otherwise will not be established."

The ASA is asking individual members to share the videos and campaign website ([www.thisisstatistics.org](http://www.thisisstatistics.org)) with the following groups of people:

- Students, if you are a high-school or college statistics instructor
- Family members—children, nieces, nephews, and grandchildren
- Teachers and guidance counselors at high schools in your area (especially if you have family members at those schools)
- Statistics professors and career counselors at colleges in your area
- The head of math or statistics department at your local high school and/or college

For chapters and sections (and the more enthusiastic individual members), we'll be providing promotional resources in the earlier-mentioned toolkit. While the toolkit contents have not been finalized yet, it likely will include downloadable and printable brochures, a PowerPoint presentation, talking points for events, drop-in press releases, a downloadable and printable poster, and links to the statistician profile videos produced for the awareness campaign.

For faculty members, especially department heads, you could host your university administration for a visit like Daniel Jeske, chair of the department of statistics at the University of California, Riverside, did and showcase *This Is Statistics* and its various promotional items. "The conversation with the chancellor came at a time when the campus was discussing options for alternative academic structures," he described. "The campaign materials, particularly the video profiles, were helpful in getting our message across that the demand and opportunity for statistics training is rapidly growing and that university statistics departments are inherently cross-disciplinary."

To become involved, email Myers at [jeffrey@amstat.org](mailto:jeffrey@amstat.org). The ASA also encourages the input of K–12 teachers, college statistics instructors, students in the target audience (grades 11–12 and undergraduates), and individual members on the campaign direction, its resources, and its messaging. ■

**More online.**  
To become involved, visit [www.thisisstatistics.org](http://www.thisisstatistics.org).

# Statistics as a Science, Not an Art: The Way to Survive in Data Science

Mark van der Laan

My father told me the most important thing about solving a problem is to formulate it accurately, and one would think most of us statisticians would agree. Suppose we want to build a spaceship that can fly to Mars and return safely to Earth. It would be tragic folly to make simplifying assumptions that are known to be false, since that would mean the death of the astronauts and certainly the failure of their mission.

However, it is not true that one must start with simplifying assumptions, as the field of statistics has the theoretical foundation that allows the precise formulation of the statistical estimation problem. The foundation of statistics laid down by its founders, which is incorporating knowledge about the data-generating experiment through the statistical model and the formal definition of the question of interest through the definition of the estimand, could not have been to arbitrarily select a “convenient” statistical model. However, that is precisely what most statisticians blithely do, proudly referring to the quote, “All models are wrong, but some are useful.” Due to this, models that are so unrealistic that they are indexed by a finite dimensional parameter are still the status quo, even though everybody agrees they are known to be false.

The consequences of giving up on formulating the actual statistical model are dramatic for our field, making statistics an art instead of a science. Young and upcoming statisticians have approached me, asking: How is it possible that if one presents the same 1) data, 2) knowledge of the experiment, and 3) scientific question of interest to two different “top” statisticians, they will most likely come up with quite different answers? How is it possible that our field is loaded with a diverse set of methods that contradict each other, without guidance for how to choose among them? My response: These statisticians do not respect the definition of a statistical model. Of course, if one gives up on the scientific standard that a statistical model has to be true, then any statistician can do whatever they want. One statistician selects a logistic linear regression with main terms  $X$  and another statistician selects main terms  $X_1$ , and of course, the coefficients in front of the treatment of interest for these two model choices

represent different estimands and also lack any easy interpretation.

A closely related and large consequence of giving up on the scientific standard of estimation based on a true statistical model is that we create a disconnect between our scientific collaborators and us, the statisticians. If we do not care about the model being true, why would we spend a lot of time talking to the scientists who generated the data trying to determine true knowledge, and why would we bother trying to determine the estimand that best answers the actual scientific question of interest?

Instead, one typically asks a few questions about the data such as: Is the outcome a survival time? Is it case-control data? And then one quickly moves on to returning output from a Cox-Ph model or a logistic regression model with some “reasonable” set of covariates. Apparently, in this type of practice, it is not necessary to listen closely to our collaborators and understand as much as possible the underlying data-generating distribution.

As a consequence, we will not be an intrinsic part of the scientific team, and the scientists will naturally have their doubts about the methods used, thus only accepting the answers we generate for them if it makes sense to them: “Fortunately,” we can try out many models until we get an answer that achieves consensus. Our collaborators will view us as technicians they can steer to get their scientific results published. Statistics is now an art, not a science: The results are unreliable. “Confidence” intervals are based on completely wrong assumptions and will have asymptotic coverage zero for the true scientific question of interest, and, because of bias, “ $p$ -values” will always be “significant” as long as the sample size is large enough.

Some of you might say, “Oh, but we often do a sensitivity analysis.” This is like building a spaceship that can only do the job under unrealistic assumptions, and then determining how it would blow up under slightly less unrealistic assumptions. How useful is that?

Is this mess we have created really necessary? No! As a start, we need to take the field of statistics (i.e., the science of learning from data) seriously.

Mark van der Laan is the Jiann-Ping Hsu/Karl E. Peace Professor in Biostatistics and Statistics at UC Berkeley. He also is a recipient of many awards, including the 2004 Spiegelman Award and the 2005 Committee of Presidents of Statistical Societies (COPSS) Award.

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... due to the lack of rigor that has developed in our field, I fear our representation in data science is becoming marginalized ...

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It is complete nonsense to state that all models are wrong, so let's stop using that quote. For example, a statistical model that makes no assumptions is always true. But, often we can do much better than that: We might know the data are the result of  $n$  independent identical experiments; the treatment decision of a medical doctor is only based on a small subset of the measured variables; the conditional probability of death is always smaller than 0.04; the experiment involved two-stage sampling with known conditional sampling probabilities; and so on.

But to obtain this knowledge, we need to take the data, our identity as a statistician, and our scientific collaborators seriously. We need to learn as much as possible about how the data were generated. Once we have posed a realistic statistical model, we need to extract from our collaborators what estimand best represents the answer to their scientific question of interest. This is a lot of work. It is difficult. It requires a reasonable understanding of statistical theory. It is a worthy academic enterprise! We will open up a new world to our collaborators by actually being able to generate questions our collaborators had no idea they were even allowed to pose. Then, they will actually get excited instead of bored to death by another logistic regression model.

Estimators of an estimand defined in an honest statistical model cannot be sensibly estimated based on parametric models, let alone be based solely on idiosyncratic model selection, and thus will typically require the state of the art in machine learning/data-adaptive estimation, and targeting the estimator toward the estimand so the resulting estimator is minimally biased and statistical inference is possible.

This was our motivation to define the field of targeted learning as the statistical subfield concerned with developing estimators and statistical inference under realistic assumptions for specified estimands of the data probability distribution. In response to having to solve these hard estimation problems the best we can, we developed a general statistical approach—targeted maximum likelihood learning, or, more generally, targeted minimum

loss-based learning—which integrates the state of the art in machine learning/data-adaptive estimation, all the incredible advances in causal inference, censored data, efficiency and empirical process theory while still providing formal statistical inference. This field is open for all to contribute to, and the truth is that anybody who honestly formulates the estimation problem and cares about learning the answer to the scientific question of interest will end up having to learn about these approaches and can make important contributions to our field.

The amount of data generated in our world for the sake of moving science forward has increased exponentially so that we now live in the world of Big Data. A new field has arisen that is called data science. Historically, data analysis was the job of a statistician, but, due to the lack of rigor that has developed in our field, I fear our representation in data science is becoming marginalized: Companies hire computer scientists and Big Data institutes are run by computer scientists, or those scientists who generate the data. As we have abandoned theory, why not go to the people who make the data or can write exciting algorithms to explore it? How did this happen? We are the science of learning from data!

There is also a very serious concern that these leaders and funding agencies do not realize that algorithms in data science need to have been grounded within a formal statistical foundation so they actually answer the questions we want to answer with a specified level of uncertainty. That is, the statistical formulation and theory should define the algorithm. Despite some prejudices to the contrary, Big Data does not obviate the need for statistical theory. Data itself is useless and can *only* be interpreted in the context of the actual data-generating experiment.

The solution to this threat to our survival as a field is precisely that we should not just state we are the science of learning from data, but to live it. Let us reinvigorate the science we are supposed to be and get away from the art. We have to be part of a scientific team solving a real-world problem. We have to formulate and solve the *actual* statistical estimation problem, educating our collaborators in the process about the unique and fundamental role of statistics. We have to start respecting, celebrating, and teaching important theoretical statistical contributions that precisely define the identity of our field. Stop working on toy problems, stop talking down theory, stop being attached to outdated statistical methods, stop worrying about the politics of our journals and our field. Be a true and proud statistician who is making an impact on the real world of Big Data. The world of data science needs us—let's rise to the challenge. ■

STATtr@k

# Advocating for Your Profession: Being a Statistical Ambassador

Steve Pierson, ASA Director of Science Policy

According to the 2011 survey by the BBVA Foundation, fewer than half of Americans are “personally acquainted with someone who is a scientist.” With statistics making up a small percentage of scientists in the United States, it’s safe to say the fraction of Americans personally acquainted with a statistician is minute.

I believe the most effective way to advocate for statistics is for more of you to be involved in activities that include nonstatisticians so more people are personally acquainted with a statistician. Through more individual outreach, more people would learn what statisticians do and what statistics is, which is the foundation of advocating for our profession.

This involvement could take many forms, including the following:

**Multidisciplinary research:** Those of you in the research community know well there could be more engagement of statisticians (or use of cutting-edge statistics) by the broader scientific community. No doubt there are endless examples of statisticians integrally involved in multidisciplinary research teams, but there’s room for many more of the community to reach out to domain scientists and help solve key research challenges. What better way to advocate for statistics than to show firsthand what statisticians can contribute to science?

**Volunteering:** Volunteering your expertise as a statistician is a great way to demonstrate to nonstatisticians how statistics can help them. Some ways to get involved include Statistics without Borders (<http://community.amstat.org/statisticswithoutborders/home>), On-call Scientists (<http://oncallscientists.aaas.org/default.aspx>), DataKind ([www.datakind.org](http://www.datakind.org)), and Statistics in the Community ([www.amstat.org/education/statcom](http://www.amstat.org/education/statcom)).

**Fellowships:** There are many fellowships that place scientists in organizations so they benefit from scientific thinking. A couple prominent examples include the AAAS Science and Technology Fellowships ([www.aaas.org/program/science-technology-policy-fellowships](http://www.aaas.org/program/science-technology-policy-fellowships)) and the Robert Wood Johnson Foundation Health Policy Fellowship ([www.healthpolicyfellows.org/home.php](http://www.healthpolicyfellows.org/home.php)).

**Writing:** Writing for other audiences is another important area in which statisticians can advocate for our profession. The writing takes the form of blog entries, whitepapers, op-eds, or letters to the editor.



**Social media:** Like in the other categories, there are many examples of statisticians successfully networking with nonstatisticians through social media.

**Data meetups/hackathons:** Go to a local data science event and identify yourself as a statistician. Just as we hope the broader data science community is open to what a statistician can contribute, be open to what you can learn from others.

**Community involvement/service:** Get involved in your community, whether judging at a science fair, making schools aware of the ASA *This Is Statistics* campaign and *Statistical Significance*, running for the school board, or weighing in on school curricula.

**Communicate to your elected officials:** Communicating with your elected officials to provide a statistical perspective on topics of the day is also an important way to advocate for your profession. One should keep in mind that the staff with whom you speak may have had statistics in graduate school or may think of statisticians as people who collect data.

In short, the most important people for advocating for statistics are you all! The statistical community knows well the many invaluable contributions of statisticians to science, policy, business, and society, but it’s up to us to make others aware. The ASA, of course, has many programs—including science policy—whose goal is advocacy for statistics. If you have comments about these activities or ideas for other activities, contact ASA Director of Science Policy Steve Pierson at [pierson@amstat.org](mailto:pierson@amstat.org). ■



# Submissions Wanted for JSM 2015 Late-Breaking Sessions



Annie (Peiyong)  
Qu, JSM 2015  
Program  
Committee Chair

Most of the technical sessions for JSM 2015 have been organized; however, there is still the opportunity to organize late-breaking sessions, which are emerging developments of our discipline and likely to attract a great number of listeners.

The JSM Program Committee manual states, “A late-breaking session must cover one or more technical, scientific, or policy-related topics that have arisen in the one-year period prior to the JSM.” There are two invited session slots reserved for late-breaking issues, and any member of the sponsoring organizations or partner societies can propose such a session.

A proposal for a late-breaking session should contain the following information:

- The session title.
- The session description, including a summary of its statistical and scientific content, an explanation of its timeliness, and comments about the specific audiences for which it will be of principal interest.
- The format of the session (e.g., a chair and four panelists; a chair, three speakers, and a discussant; or a chair, two speakers, and two discussants).
- Names of the session organizer, chair, speakers, panelists, and discussants.



August 8–13

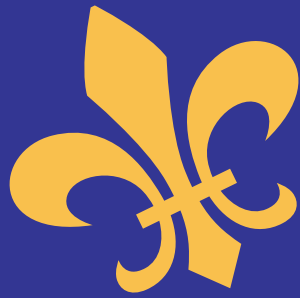
**JSM2015**

Seattle

- Complete affiliation and contact information (mailing address, phone, fax, email) for organizer, chair, and all participants.
- A title for each presentation.
- Web links to relevant technical reports, if applicable.

Since the goal of these sessions is to ensure that new and emerging topics are presented at JSM, item (B) is extremely crucial. Because these sessions are scheduled just a few months before JSM, we are requesting that all session participants—including the chair, speakers/panelists, and discussants—agree to participate in the session before the session proposal is submitted. Note that participation in a late-breaking session will not count toward the limits on participation established for JSM.

Proposals should be sent to Annie (Peiyong) Qu, JSM 2015 Program Committee chair, at [anniequ@illinois.edu](mailto:anniequ@illinois.edu) and ASA meeting staff at [meetings@amstat.org](mailto:meetings@amstat.org) by April 14. ■



# Thanks!

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# 2015 Roger Herriot Award for Innovation in Federal Statistics

Nominations are being sought for the 2015 Roger Herriot Award for Innovation in Federal Statistics. The award is intended to reflect the special characteristics that marked Herriot's career, including:

- Dedication to the issues of measurement
- Improvements in the efficiency of data-collection programs
- Improvements and use of statistical data for policy analysis

## Past Award Recipients

1995 - **Joseph Waksberg** (Westat)  
 1996 - **Monroe Sirken** (National Center for Health Statistics)  
 1997 - **Constance Citro** (National Academy of Sciences)  
 1998 - **Roderick Harrison** (U.S. Census Bureau), **Clyde Tucker** (Bureau of Labor Statistics)  
 1999 - **Thomas Jabine** (SSA, EIA, CNSTAT)  
 2000 - **Donald Dillman** (Washington State University)  
 2001 - **Jeanne Griffith** (OMB, NCES, NSF)  
 2002 - **Daniel Weinberg** (U.S. Census Bureau)  
 2003 - **David Banks** (FDA, BTS, NIST)  
 2004 - **Paula Schneider** (U.S. Census Bureau)  
 2005 - **Robert E. Fay III** (U.S. Census Bureau)  
 2006 - **Nathaniel Schenker** (National Center for Health Statistics)  
 2007 - **Nancy J. Kirkendall** (Office of Management and Budget)  
 2008 - **Elizabeth Martin** (U.S. Census Bureau)  
 2009 - **Lynda Carlson** (National Science Foundation)  
 2010 - **Katharine Abraham** (University of Maryland)  
 2011 - **Michael Messner** (U.S. Environmental Protection Agency)  
 2012 - **Paul Biemer** (RTI International)  
 2013 - **Exact Match Team** (Social Security Administration, U.S. Census Bureau, and Internal Revenue Service)  
 2014 - **Longitudinal Employer Household Dynamics study**; Abowd, Haltiwanger, Lane

Herriot was the associate commissioner of statistical standards and methodology at the U.S. National Center for Education Statistics (NCES) when he died in 1994. Prior to his service at NCES, he also held several positions at the U.S. Census Bureau, including chief of the Population Division. Soon after his death, the Social Statistics and Government Statistics sections, along with the Washington Statistical Society, established the Roger Herriot Award for Innovation in Federal Statistics. The award is intended to recognize individuals or teams who, like Herriot, develop unique and innovative approaches to the solution of statistical problems in federal data-collection programs.

The award is not limited to senior members of an organization, nor is it to be considered for a culmination of a long period of service. Individuals or teams at all levels within federal statistical agencies, other government organizations, nonprofit organizations, the private sector, and the academic community may be nominated based on their contributions. As innovation often requires or results from teamwork, team nominations are encouraged. Team innovations often are more lasting, resulting in real paradigm shifts, not just one-off improvements. For an example, see the 1998 Herriot (team) award.

The recipient of the 2015 Roger Herriot Award will be chosen by a committee comprising representatives of the ASA Social Statistics and Government Statistics sections and the Washington Statistical Society. Herriot was associated with, and supportive of, these organizations during his career.

The award consists of a \$1,000 honorarium and a framed citation, which will be presented at a ceremony during the Joint Statistical Meetings in August. The Washington Statistical Society also will host a seminar given by the winner on a subject of his or her choosing.

Nomination packages should contain the following:

- A cover letter from the nominator that includes references to specific examples of the nominee's contributions to innovation in federal statistics. These contributions can be to methodology, procedure, organization, administration, or other areas and need not have been made by or while a federal employee.
- Up to six additional letters of support that demonstrate the innovation of each contribution.
- A current vita for the nominee with contact information. For team nominations, the vitae of all team members should be included.
- Completed packages must be received by April 1. Electronic submissions in a Microsoft Word or PDF file are encouraged.
- The committee may consider nominations made for prior years, but it encourages resubmission of those nominations with updated information.

For more information, contact Fritz Scheuren, chair of the 2016 Roger Herriot Award Committee, at (202) 320-3446 or [Scheuren@aol.com](mailto:Scheuren@aol.com). ■

## Deadlines and Contact Information for ASA National Awards, Special Lectureships, and COPSS Awards

[www.amstat.org/awards](http://www.amstat.org/awards)

**February 20, 2015**

### ASA Statistics in the Physical and Engineering Sciences Award

Nominations and Questions:

Philip J. Ramsey [pjrstats@aol.com](mailto:pjrstats@aol.com)

**February 23, 2015**

### ASA Gertrude M. Cox Scholarship

Applications: Pam Craven [pamela@amstat.org](mailto:pamela@amstat.org)

Questions: Eloise E. Kaizar [ekaizar@stat.osu.edu](mailto:ekaizar@stat.osu.edu)

**March 1, 2015**

### ASA Edward C. Bryant Scholarship

Applications: Pam Craven [pamela@amstat.org](mailto:pamela@amstat.org)

Questions: Tapabrata Maiti [maiti@stt.msu.edu](mailto:maiti@stt.msu.edu)

**March 1, 2015**

### ASA Excellence in Statistical Reporting Award

Nominations: Pam Craven [pamela@amstat.org](mailto:pamela@amstat.org)

Questions: Morteza Marzjarani  
[mortkm2@yahoo.com](mailto:mortkm2@yahoo.com)

**March 1, 2015**

### ASA Fellows

Nominations accepted online at

[www.amstat.org](http://www.amstat.org) beginning October 1, 2015

Questions: Stephanie S. Shipp  
[steph19@vbi.vt.edu](mailto:steph19@vbi.vt.edu)

**March 1, 2015**

### ASA Outstanding Statistical Application Award

Nominations: Pam Craven [pamela@amstat.org](mailto:pamela@amstat.org)

Questions: DuBois Bowman  
[dubois.bowman@columbia.edu](mailto:dubois.bowman@columbia.edu)

**March 15, 2015**

### ASA Founders Award

Nominations: Pam Craven [pamela@amstat.org](mailto:pamela@amstat.org)

Questions: Nathaniel Schenker  
[natschenker@gmail.com](mailto:natschenker@gmail.com)

## Ellis R. Ott Scholarship for Applied Statistics and Quality Management

The Statistics Division of the American Society for Quality is offering \$7,500 scholarships to support students who are enrolled in, or are accepted into enrollment in, a master's degree or higher program with a concentration in applied statistics and/or quality management. This includes the theory and application of statistical inference, statistical decision making, experimental design, analysis and interpretation of data, statistical process control, quality control, quality assurance, quality improvement, quality management, and related fields.

The emphasis is on applications as opposed to theory, and students must attend a North-American institution.

During the last 17 years, scholarships totaling more than \$250,000 have been awarded to 48 students.

Qualified applicants must have graduated in good academic standing in any field of undergraduate study. Scholarship awards are based on demonstrated ability, academic achievement, industrial and teaching experience, involvement in student or professional organizations, faculty recommendations, and career objectives.

Application instructions and forms can be downloaded from <http://asq.org/statistics/about/awards-statistics.html>. Forms for the 2015–2016 academic year will be accepted until April 1.

Members of the governing board include Susan Albin, Lynne Hare, J. Stuart Hunter, Tom Murphy, Dean V. Neubauer, Robert Perry, Susan Schall, and Ronald Snee.

For more information, contact Lynne B. Hare at [lynnehare@verizon.net](mailto:lynnehare@verizon.net). ■

## Excellence in Statistical Reporting Award

The ASA is accepting nominations for its 2015 Excellence in Statistical Reporting Award (ESRA). ESRA honors reporters who display an informed interest in statistical science and its role in public life through their work. ASA members can nominate a reporter (or a group) for the honor. Award criteria, submission instructions, and a nomination form are available at [www.amstat.org/awards/excellenceinstatisticalreportingaward.cfm](http://www.amstat.org/awards/excellenceinstatisticalreportingaward.cfm). The nomination deadline is March 1. ■



## Obituaries

### Robert (Bob) Hogg

By Joseph B. Lang



Hogg in 2006

Robert V. “Bob” Hogg, professor emeritus of statistics and actuarial science, passed away on December 23, 2014, in Highlands Ranch, Colorado, at the age of 90. He was an internationally renowned statistics textbook author, pioneering researcher, and an award-winning teacher. Blessed with a fun-loving, charismatic personality and a sharp mind, Bob has been aptly described as a giant in statistics and will be remembered by his colleagues as an indefatigable and inspirational leader who fostered an atmosphere of mutual respect. He valued diverse contributions, promoted excellence, and energized the department with his mantra, “Let’s make learning fun.”

Bob was born November 28, 1924, in Hannibal, Missouri. (He was fond of reminding folks, tongue-in-cheek, that another famous author, Mark Twain, hailed from Hannibal.) After earning his BS in mathematics at the University of Illinois, he matriculated at the University of Iowa (UI) in 1947. Fortunately for the university, he was to remain there until he retired 54 years later. Blessed with a gregarious personality



Hogg in 2003 teaching a class during a chapter career day

and quick wit, Bob was a fixture on campus and in the Iowa City community. Whether handing out candy canes across campus dressed as Santa or telling (and re-telling) amusing stories at Rotary Club meetings, his love of the university and the community was conspicuous.

Bob earned his PhD in 1950, under the direction of Allen T. Craig, a statistician in the UI mathematics department. Allen—who would become Bob’s long-time friend, mentor, and co-author—convinced Bob to join the faculty upon graduation. After 15 years in the mathematics department, Bob became the founding chair of the newly formed department of statistics and actuarial science in 1965. Serving in this capacity for 19 years, Bob created a world-class department that valued diverse contributions and promoted excellence in all three areas: research, service, and teaching.

A wonderful mentor, he enjoyed team teaching with junior faculty right up to the time of his retirement. The department fondly remembers Bob’s “final” colloquium talks. (There were three or four of these, which would not surprise those who knew Bob.)

He would begin by saying that “statistics is my friend” because it introduced him to so many interesting people from around the world. The “ham in hogg” was manifest in his telling (and re-telling) of amusing stories and jokes. Always the entertainer, Bob would end each of these talks with a modified rendition of the song, “Thanks for the Memories.”

Bob was not only devoted to the department and the university. He also served the statistics profession in many ways. Among other things, Bob served as the president of the American Statistical Association in 1988. He was program secretary for the Institute of Mathematical Statistics (1968–1974). He twice chaired the Education Section of the American Statistical Association, and he was twice the program chair of the ASA Winter Conferences. In 1991, he received the American Statistical Association’s Founders Award. And in 2006, he received the Carver Medal for his “exceptional service specifically to the IMS [Institute of Mathematical Statistics].” His vision and charisma served him well, and the profession has benefited greatly from his efforts.

Bob was a pioneering researcher who wrote many influential articles on topics including statistical independence, nonparametrics, quality improvement, robust and adaptive statistics, and statistics education. For his research contributions in nonparametric statistics, Bob received the Gottfried Noether Senior Scholar Award in 2001. This award is one of several prestigious awards bestowed on Bob over the years. In recognition of his outstanding research, Bob was an elected fellow of the American Statistical Association, Institute of Mathematical Statistics, and International Statistical Institute.

A gifted textbook author and a true scholar, Bob was an exemplar of how research can inform and energize teaching, and vice versa. Bob, along with his mentor, Allen Craig, co-authored a successful mathematical statistics textbook that drew on their research and classroom experiences. This book, known simply as “Hogg and Craig,” was innovative in its treatment of sufficiency and change-of-variable methods. Originally published in 1959, Hogg and Craig is now in its 7th edition (which added Joe McKean as a co-author). Printed in many languages, it is internationally renowned and continues to inspire a new generation of statistics students.

Over the years, Bob co-authored several more successful statistics textbooks, including the eponymously titled, “Hogg and Tanis,” “Hogg and Klugman,” and “Hogg and Ledolter.” All these books benefited from Bob’s attention to detail and his clear writing style.

Students and colleagues remember Bob as an extraordinary teacher with a love of statistics that was infectious. Indeed, Bob fostered a culture

of excellence in teaching in the department of statistics and actuarial science that lives on to this day. His lively teaching style was effective, if a bit unconventional. One of his techniques was to good-naturedly “pick on” one randomly selected student, quizzing him or her throughout the class period. That this approach worked so well, and that students all report learning so much, is a testament to Bob’s gift as a teacher and his ability to make learning fun.

In recognition of his teaching efforts and effectiveness, Bob was honored with numerous awards. From 1990–1993 alone, he received the Governor’s Science Medal for Teaching (1990), University of Iowa Teaching Award (1991), Distinguished Teaching Award from the Iowa Chapter of the Mathematical Association of America (1992), Faculty Excellence Award from the Iowa Board of Regents (1992), and the Distinguished Teaching Award from the Mathematical Association of America (1993).

Bob’s interest in teaching went well beyond his own classrooms. He was internationally recognized as a leader in statistics education when he received the ASA’s Founders Award in 1991. Always a promoter of quality improvement, he once toured the country, visiting businesses, industry, and academic programs to better understand how statistics education could be improved and modernized to better align with the way statistics was actually being used in practice. He also took advantage of his term as president of the American Statistical Association to emphasize the need to improve statistics education. Complementing these efforts, Bob authored and co-authored several influential papers on statistics education. Owing to Bob’s

many contributions, the statistics profession and classrooms are healthier than ever.

In 2003, Bob was the recipient of the University of Iowa’s Faculty/Staff Distinguished Alumni Award. It is fitting to finish with a quote from Bob’s profile at the award website ([www.iowalum.com/daalsearch/profile.cfm?ID=178](http://www.iowalum.com/daalsearch/profile.cfm?ID=178)): “The Alumni Association is proud to honor a man whose career has helped define the field of statistics, and whose work as an educator has benefited—and will continue to benefit—generations of students at the UI and throughout the world.”

For more information about Bob Hogg, visit [http://en.wikipedia.org/wiki/Robert\\_V.\\_Hogg](http://en.wikipedia.org/wiki/Robert_V._Hogg). ■

## Rick Platek

Richard Platek passed away December 21, 2014, in Ottawa, Ontario, Canada.

Born Ryszard Sobieszczanski in Ostrowiec, Poland, Richard survived the Auschwitz concentration camp. University studies in mathematics and statistics in London, England, were followed by a long and successful career at Statistics Canada in Ottawa.

In 1975, Richard founded the *Survey Methodology Journal*, which grew from an in-house to an internationally distributed journal. He was a Fellow of the American Statistical Association and honorary member of the Polish Statistical Association. In 1993, the Republic of Poland awarded Richard the Knight Cross of the Order of Merit.

To read his complete obituary, visit the Ottawa Citizen at <http://bit.ly/1C7YVr4>. ■

# Boston Chapter Concludes 175th Anniversary Celebrations with Symposium, Banquet

Robert Goldman, Tom Lane, and John McKenzie

Panel	Most Interesting Forecasts
Future of Statistics in K-12 Education	Technology from tables to MOOCs will have a continuing impact. There will be increased needed teacher support and training. More statistics will be taught in K-12. An open question is what kind? Conceptual vs. Formulas.
Future of Statistics in Undergraduate Education	Nonstatistical data science topics such as computer programming, visualization, and algorithmic methods will be added to the curriculum. Multiple tracks for statistics majors and minors will exist. There will be greater emphasis on communication of results and collaboration with others.
Future of Statistics in Graduate Education	Programs will include both mathematical and interdisciplinary training (with real experience in the corporate world, including ethical standards). An increased emphasis on design will occur. There will be a convergence of statistics, analytics, computer science, and causality studies.
Future of Statistic in Sports	Many more micro-experiments will be undertaken. The use of radio-frequency identification (RFID) tags will increase.
Future of Statistics in the Health Sciences	The challenge of reproducibility of results will be addressed. There will be a shift from generalizing to wide populations to aiming at narrow groups or individuals. There will be increased study of chronic diseases.
Future of Statistics in Industry and Consulting	Adaptive clinical designs in pharmaceutical statistical consulting will get bigger. Consulting will continue to start with a conversation. More pharmaceutical firms will collaborate on clinical trials.

The Boston Chapter held a symposium and banquet December 6 to celebrate the 175th anniversary of the founding of the ASA in Boston on November 27, 1839. The event, with the theme “Future of Statistics,” was held at Simmons College, only a few miles from the original ASA meeting place on 15 Cornhill.

More than 80 participants were welcomed by Tom Lane, president of the Boston Chapter. This was followed by a brief history of the chapter, presented by Dominique Haughton of Bentley College.

The symposium featured six panel discussions. Three focused on the future of statistics education at the K-12, undergraduate, and graduate levels. A parallel sequence of panel discussions focused on the future of statistics in sports, the health sciences, and industry and consulting. All the panel discussions were lively, thought provoking, and well attended. At each, attendees were asked to record what they regarded as the most intriguing forecast made by the panelists. Here are the most popular choices:

At the symposium luncheon, ASA Executive Director Ronald Wasserstein presented greetings from the association before Lane announced that Scott Evans, senior scientist at the Harvard University School of Public Health, was the recipient of the 2015 Mosteller Statistician of the Year

Award. Evans will be presented with the award at a banquet on February 17.

To celebrate the anniversary, the Boston Chapter named four prominent statisticians as 175th Anniversary Awardees: **Herman Chernoff**, **George Cobb**, **Herbert Weisberg**, and **John McKenzie**. The event organizers made a special effort to preserve a record of this historic occasion with many photographs, including photos of past Mosteller award winners and past presidents of the Boston Chapter.

Between the end of the symposium and the beginning of the banquet, attendees were invited to watch two historically significant videos: *The ASA Sesquicentennial Statistical Science: 150 Years of Progress* (<http://youtu.be/g004gbfzAUE>), and *The Seven Pillars of Statistical Wisdom* by Stephan Stigler (<http://bit.ly/1L530Tc>).

The evening events began with a cash bar followed by a banquet. Attendees then received greetings from Lane and ASA Past President Nat Schenker. The highlight of the banquet was a historical address given by Nicholas Horton, professor of statistics at Amherst College. The address, titled “Challenges and Opportunities for Statistics and Statistical Science (Looking Forward, Looking Back),” was received warmly and capped a long, but memorable, celebration. ■



# California Chapters Collaborate on Statistical Tribute

The Orange County/Long Beach, San Diego, and Southern California chapters—three chapters in which the late Bob Newcomb played vital roles—sponsored a statistical tribute to him November 15, 2014, at the City of Hope Medical Center in Duarte, California.

The morning session, organized by Harold Dyck of California State University, San Bernardino, featured several of Newcomb's former students and colleagues, each speaking movingly of his influence as a builder of statistical community at both local and national levels.

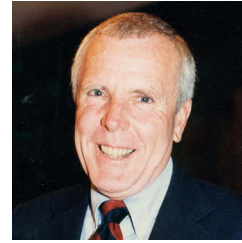
At the University of California, Irvine, where he taught statistics for more than 40 years, Newcomb was the founding director of the UCI Center for Statistical Consulting, and he played a critical role in the establishment of the department of statistics in 2002. In 2012, the department established an annual lecture and the Robert L. Newcomb Graduate Fellowship Fund (<http://bit.ly/1IRiUwC>) in his honor.

As president of the ASA's Southern California Chapter in the 1970s, Newcomb inaugurated the annual Applied Statistics Workshop, featuring nationally prominent statisticians. Later, he initiated the chapter's annual Career Day. He also facilitated the creation of the San Diego and Orange County/Long Beach chapters to better serve local needs in the Southern California area while encouraging the three regional chapters to engage in joint activities when advantageous to do so.

At the national level, Newcomb served at various times as an officer of the ASA's Council of Chapters Governing Board, the Statistical Graphics Section, and

the ASA Committee on Career Development, as well as the JSM Committee on Meetings. The ASA named him a Fellow in 2003, recognizing his "service as an outstanding ambassador of the statistics profession through passionate and inspirational teaching, by mentoring students, and extraordinary contributions at the local and national levels; and for skill, leadership, and vision in consulting."

The afternoon presentations, organized by Subir Ghosh of the University of California, Riverside, highlighted some of Bob's particular professional interests: statistical computing, consulting, and cross-disciplinary collaboration. The presenters were Robert N. Rodriguez ("An Insider's Perspective on the Development of SAS Statistical Software"), Duane Steffey ("Statistical Consulting in Industry"), Karen Messer




Robert L. Newcomb

("Statistical Issues in Prognostic Modeling in Cancer Recurrence"), and Danh V. Nguyen ("Clinical and Translational Research: Rich Interactions, Interdisciplinary Teams, Mentoring").

This statistical tribute was a heartfelt celebration of the enormous impact Newcomb had on many statisticians (and on many people in other fields who work with statisticians) as a teacher, mentor, colleague, and friend. Fittingly, the collaboration of the three chapters embodied Newcomb's vision for the regional statistical community. He will be missed. ■

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# sectionnews

## Biopharmaceutical

The Biopharmaceutical Section congratulates the following JSM 2014 poster award winners:

### First Place

“Optimal Designs with Interim Analyses for Randomized Studies with Long-Term Time-Specific Endpoints,” by **Bo Huang** and **Neal Thomas**

### Second Place

“A Comparison and Integration of Quantile Regression and Finite Mixture Modeling,” by **Richard J. Willke**, **Ching-Ray Yu**, **Biol Emir**, **Kelly H. Zou**, and **Javier Cabrera**

### Third Place

“Logistic Regression Likelihood Ratio Test Analysis and Harnessing Graphics to Explore Safety Data in the Vaccine Adverse Event Report System (VAERS),” by **Kijoeng Nam** and **Estelle Russek-Cohen**

## Physical and Engineering Sciences

*Byran Smucker, Miami University, SPES Education Chair*

The 22nd ASA/IMS Spring Research Conference (SRC 2015) on Statistics in Industry and Technology will be hosted by Procter & Gamble and held in Cincinnati, Ohio, at the Hyatt Regency, May 20–22. The SRC promotes cross-disciplinary research in statistical methods and collaboration between researchers and practitioners.

The theme of this year’s conference is “Bridging Statistics Research and Application to Foster Innovation.” Topics to be discussed include the design and analysis of experiments, computer experiments, Big Data, quality improvement and control, measurement systems, consumer research, statistical computing and applications to consumer products, the Air Force, and industry and government. Keynote speakers include Vijay Nair of the University of Michigan and Sallie Keller of Virginia Tech.

Submissions for contributed talks will be accepted until April 1. Submit a title and abstract via the SRC 2015 website at [www.cvent.com/d/44qpkn](http://www.cvent.com/d/44qpkn).

A number of \$600 scholarships will be available to selected student and early-career presenters.

For registration and all other information, please visit [www.cvent.com/d/44qpkn](http://www.cvent.com/d/44qpkn) or contact the contributed program chair, Byran Smucker, at [smuckerb@miamioh.edu](mailto:smuckerb@miamioh.edu).

## Survey Research Methods

*By Phil Kott*

The Survey Research Methods Section (SRMS) had another busy year. We had a full program at the Joint Statistical Meetings, including a well-attended business meeting and mixer. Unfortunately, there was a bit of a mix-up in the scheduling and announcement of the SRMS speed session. Part of the problem was our members have yet to appreciate this wonderful way of presenting their work: a four-minute advertisement in what looks like a standard contributed session (except that a speaker understands she cannot present her entire paper in four minutes) followed by a “poster” session that day, in which each presenter has the opportunity to explain further the results in her paper to interested persons using a set of slides viewed on a large personal computer screen.

In addition to JSM, SRMS was a sponsor of the conference in honor of Malay Ghosh held at the University of Maryland: “Frontiers of Hierarchical Modeling in Observations Studies, Complex Surveys, and Big Data.” We are sponsoring a number of upcoming conferences and workshops, as well. Our current chair will tell you about those. I want to take a moment to discuss the past.

Today, there are four journals with links on our website ([www.amstat.org/sections/srms](http://www.amstat.org/sections/srms)) that are particularly receptive to papers on survey research: *Journal of Survey Statistics and Methodology* (launched in 2013), *Survey Methodology*, *Journal of Official Statistics*, and *Survey Research Methods*. Not that long ago, much of the best research on survey statistics could only be found in the *Proceedings of the Survey Research Methods Section*. Links to those papers also can be found on our website. What cannot be easily found, yet, are papers on survey research written between 1974 and 1977, when survey research was a subsection of the Section of Social Statistics. We are hoping to remedy that situation in the near future, thanks to the efforts of Michael Yang and Fritz Scheuren.

There are many who contributed to SRMS’ activities during the past year, and I would like to

recognize the dedication and contributions of those who served on the executive and related committees. These include past-chair Jill Montaquila, treasurer Jill Dever, secretary Sam Hawala, program chair Karol Krotki, program chair-elect Daniell Toth, Council of Sections representatives Chris Moriarity and Jeff Gonzalez, publications officer John Finamore, education officer Marilyn Seastrom, newsletter editors Shelton Jones and Jamie Ridenhour, and webmaster Pushpal Mukhopadhyay.

A final historical note: The position of SRMS historian has been vacant for many years. Sadly, we lost many of our historical records when our last-known historian passed on those records to an unremembered person. I am overjoyed that Mike (P.) Cohen has taken on the assignment of being our new historian.

But the business of SRMS is more about the future than the past. We have a vibrant section, well represented by our new chair, Mike Elliot.

*By Michael Elliott*

SRMS has a busy schedule of conferences, webinars, and other educational activities planned for 2015. The section will once again be active when JSM returns to Seattle, Washington, August 8–13 ([www.amstat.org/meetings/jsm/2015](http://www.amstat.org/meetings/jsm/2015)). SRMS will sponsor invited, topic-contributed, and contributed paper sessions, as well as continuing education courses, roundtable discussions, and poster sessions.

This year, JSM is beginning to limit the number of topic-contributed sessions in an effort to increase the number of speed sessions. As someone who participated last year, I think speed presentations provide a great opportunity to combine wide dissemination with deep follow-up discussion, and I would encourage members to consider presenting in this format.

If you come to Seattle, please be sure to attend the SRMS business meeting and mixer, tentatively scheduled for Wednesday, August 12. Section members and non-members are encouraged to attend and enjoy free food and drink, as well as the opportunity to meet former and future colleagues. Members who stay for the meeting can learn about and participate in the governance of both the SRMS and ASA. For those who have heard of the Pacific Northwest's rains, remember Seattle sees only about

1 in. of rain in August, with mild temperatures and low humidity, so come and enjoy!

Besides JSM, SRMS will co-sponsor the 2015 International Total Survey Error Conference in Baltimore, Maryland, September 19–22 ([www.tse15.org](http://www.tse15.org)), with a particular focus on Big Data and total survey error. In addition to contributed paper sessions, the 2015 ITSE will feature plenary talks by Colm O'Muircheartaigh and Abe Usher, as well as three full-day short courses.

Other meetings of interest to section members include the 70th annual AAPOR conference in Hollywood, Florida, May 14–17 ([www.aapor.org/AAPORKentico/Conference/2015-Conference](http://www.aapor.org/AAPORKentico/Conference/2015-Conference)), the 6th Conference of the European Research Organization in Reykjavik, Iceland, July 13–17 ([www.europeansurveyresearch.org/conference](http://www.europeansurveyresearch.org/conference)), and the ISI Satellite Meeting on Small Area Estimation in Santiago, Chile, August 3–5 ([www.encuestas.uc.cl/sae2015](http://www.encuestas.uc.cl/sae2015)).

In addition to the face-to-face courses offered at JSM and ITSE, SRMS is again planning a series of webinars for 2015. Webinars will be announced to members via email and the SRMS newsletter ([www.amstat.org/sections/SRMS/newsletter.html](http://www.amstat.org/sections/SRMS/newsletter.html)). Information also will be provided on the SRMS website as the year moves forward.

One of the section's most important activities is fostering, supporting, and encouraging scholarly work by students entering the field of survey research. To this end, SRMS sponsors or co-sponsors two student awards, the SRMS student travel awards ([www.amstat.org/sections/srms/travelapp\\_2015.pdf](http://www.amstat.org/sections/srms/travelapp_2015.pdf)), and the SSS/GSS/SRMS student paper competition ([www.amstat.org/sections/srms/StudentPaperCompetition\\_2015.pdf](http://www.amstat.org/sections/srms/StudentPaperCompetition_2015.pdf)). While these awards are open to students only, faculty should encourage students to apply—and to join SRMS, which is free to ASA student members.

This is a time of great ferment in statistics, as our field is being energized by the emergence of Big Data. Survey statistics—with its long-term focus on selection bias and representativeness, data linkage and disclosure risk, and missing data and massive data sets—is in many ways poised to be at the center of this activity. If you have ideas to share about how SRMS can better serve you and the field—regardless of whether you are a member (*especially* if you are not a member)—please feel free to get in touch with me at [mrelliot@umich.edu](mailto:mrelliot@umich.edu). ■

To view more section news visit <http://magazine.amstat.org>.

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).

### Arizona

■ Northern Arizona University invites applications for a statistics lecturer position available August 2015. Minimum qualifications include a master's degree in statistics, biostatistics or equivalent; and four+ years teaching experience in statistics or mathematics at the university, college or high school level. This is a non-tenure eligible, annually renewable position. Review of applications began January 5, 2015. See <http://nau.edu/Human-Resources/Careers/Faculty-and-Administrator-Openings> for details. NAU is an AA/EEO/MWDV employer.

■ Northern Arizona University invites applications for a tenure-track assistant professor in statistics available August 2015. Minimum qualifications include a doctorate in statistics or biostatistics expected by August 17, 2015, and teaching experience at the college level. Research interest in methods applied to very large data sets (informatics) preferred. Review of applications began

December 3, 2014. See <http://nau.edu/Human-Resources/Careers/Faculty-and-Administrator-Openings> for complete details. Northern Arizona University is an AA/EEO/MWDV employer.

### California

■ Genentech is seeking a statistical scientist—nonclinical biostatistician for our south San Francisco headquarters. The incumbent will provide statistical expertise to nonclinical drug development activities, with a focus on technical operation including assay development, bioprocess development, quality control, and manufacturing. The desired candidate will have a master's or PhD in statistics or biostatistics with at 2–5 years' experience least five years of experience. [www.gene.com/careers/find-a-job/apply/00431870?src=JB-11480](http://www.gene.com/careers/find-a-job/apply/00431870?src=JB-11480). EOE.

### Georgia

■ Georgia State University Mathematics and Statistics Department, located in Atlanta, GA, invites applications for tenure-track assistant/associ-

ate professor position requiring a PhD in statistics or biostatistics. Submit applications to [www.mathjobs.org](http://www.mathjobs.org). An offer of employment will be conditional upon background verification. Georgia State University is a Research University of the University System of Georgia and an EEO/AA institution.

### Maryland

■ The department seeks candidates with a degree in statistics. Previous full-time experience in a college/university setting is a plus. To apply, please go to <https://careers.loyola.edu> to electronically submit a cover letter, CV, statement of teaching philosophy, sample teaching evaluations, and list of references. In addition, please have three letters of recommendation sent directly to [pscholtz@loyola.edu](mailto:pscholtz@loyola.edu). EOE.

### Michigan

■ Two teaching specialists, Department of Statistics & Probability, Michigan State University—see [www.stt.msu.edu/Job\\_Postings.aspx](http://www.stt.msu.edu/Job_Postings.aspx) for more information and the needed application material. Required PhD in statistics, at least 3 years teaching experience at the university level of service/undergraduate courses in statistics. Submit application material to the site of position #0402 at <https://jobs.msu.edu>. Review began 01/15/2015 and will continue until positions are filled. Michigan State University is an affirmative action, equal opportunity employer committed to achieving excellence through cultural diversity. The university actively encourages applications and/or nominations of women, persons of color, veterans and persons with disabilities.

■ Data scientist for a “start-up” group within Steelcase applying mathematics and problemsolving to understand the performance of space and people in it. We are looking for an innovator with a passion for data visualization, data modeling, and algorithm development. Steelcase strongly supports a diverse workplace and welcomes all applicants. Please contact [Khargan@steelcase.com](mailto:Khargan@steelcase.com). EOE.

■ The department of computational mathematics, science, and engineering together with the department of statistics and probability at Michigan State University invite application for one tenure-stream open-rank faculty position. Candidates with a background in statistics/biostatistics or related fields,



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## New Jersey

■ Janssen R&D is recruiting for an associate director of biostatistics, located in Raritan, NJ, Titusville, NJ or Spring House, PA. Candidate will be responsible for providing statistical leadership/hands-on support for clinical development in the cardiovascular area, including clinical study design, statistical analysis plan, clinical study report, integrated summaries of efficacy and safety, regulatory submissions, regulatory inspections, information requests from health authorities and advisory committees. <http://bit.ly/1smnhIu> EOE.



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A complete position description and application instructions can be found at [cph.osu.edu/facstaff/employment-opportunities](http://cph.osu.edu/facstaff/employment-opportunities).

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The Biometrics Division of the Cancer Institute of New Jersey (CINJ) and the Department of Biostatistics of the Rutgers School of Public Health (SPH), in New Brunswick/Piscataway, New Jersey is seeking applicants for a tenure-track faculty Biostatistician position starting immediately.

Biostatistics is an essential part of the nucleus of the biomedical and health science research at CINJ and Rutgers SPH. Biostatisticians with qualified background and skills are needed to collaborate with biomedical and public health investigators for a wide range of important problems resulting from new experimental and observational paradigms. Specifically, the faculty person will:

- Develop statistical methodology and conduct collaborative research with other biomedical investigators in the cancer research programs at the CINJ.
- Participate in the design and conduct statistical analyses of clinical trials, population studies, biomarker and NGS data and other experiments in genomics and proteomics.
- Provide support to system biology and precision medicine research programs at the CINJ such as regularization techniques used for tackling high-dimension-low-sample-size problems.
- Participate in the educational activities of the biostatistics program at SPH.

**Qualifications:**

- PhD in statistics, biostatistics, or equivalent.
- Strong training and records in modern multivariate statistics methods.
- Bio-computing (SAS and R) experience, and experience in cancer genetics collaborative research and studies.
- Good oral and written communication skills.
- Interest in pursuing a career in academic research, teaching, and consulting environment.

Preference will be given to appointments at the Assistant or Associate Professor level, although applications from more senior biometricians will also be considered.

The campuses offer modern computer & research facilities to support research in biomarker, translational studies, clinical trials, genomics, proteomics, NGS technologies, big data, and related areas. Cooperative educational and research programs exist with neighboring academic institutions and affiliated Centers of Excellence. For consideration, please send curriculum vitae, a statement of research interests and 3 reference letters to: **Professor Weichung J. Shih, Chair, Department of Biostatistics, Rutgers School of Public Health, and Director of Biometrics, Cancer Institute of New Jersey, Rm 5007, 120 Little Albany St., New Brunswick, NJ 08901.**

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**New York**

■ Assistant Professor, Mathematics—Dyson College of Arts and Sciences—Pace University. Tenure-track position begins September 2015. NYC campus. PhD or equivalent in statistics or in mathematics with a specialty in statistics. Submit a letter of application, vita, and the names of three references to [statsearch@pace.edu](mailto:statsearch@pace.edu). Include a list of all courses taught as well as pedagogical practices used in teaching. EOE/AA.

**North Carolina**

■ East Carolina University, Greenville, NC, invites applications for an anticipated full-time, tenure-track position at the assistant or associate professor level in applied mathematics and/or in statistics, contingent upon funding, beginning August 17, 2015. PhD required and commitment to teaching, research, and service to the university, community, and profession is expected. #937803 Please view the full posting including the link to apply at [ecu.peopleadmin.com/applicants/Central?quickFind=76704](http://ecu.peopleadmin.com/applicants/Central?quickFind=76704). EOI/AA.

**Pennsylvania**

■ The Wharton Statistics Department, University of Pennsylvania, seeks candidates for a postdoctoral researcher position. The position is for two years beginning in summer 2015, with a possible extension to three years. The primary focus is for a new scholar to develop her/his research program; a light teaching load will also be involved. Please visit our website to apply: <https://statistics.wharton.upenn.edu/recruiting/postdocpositions>. Please direct questions to [stat.postdoc.hiring@wharton.upenn.edu](mailto:stat.postdoc.hiring@wharton.upenn.edu). The University of Pennsylvania is an EOE. Minorities / Women / Individuals with disabilities /Protected Veterans are encouraged to apply.

**Texas**

■ The Department of Environmental Toxicology at Texas Tech University invites applications for a tenure-track assistant professor in statistics or biostatistics. A PhD degree in statistics, biostatistics, or a relevant scientific field with a strong statistical emphasis is required. For more information or

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to apply, contact Greg Mayer, Search Committee Chair, Department of Environmental Toxicology, Texas Tech University, Box 41163, Lubbock, TX 79409. email: [greg.mayer@ttu.edu](mailto:greg.mayer@ttu.edu). EOE.

### Wisconsin

■ The University of Wisconsin-Platteville Mathematics Department has an opening for a tenure-track statistician beginning August 2015. A doctorate in statistics must be completed with a transcript provided by January 1, 2016. To apply, visit the website: [www.uwplatt.edu/employment-opportunities](http://www.uwplatt.edu/employment-opportunities). Review of applications began on January 12, 2015; however, applications will be accepted until the position is filled. EOE.

### International

■ Tenure-track assistant professor for business statistics, department of ISOM, HKUST. Demonstrated excellence in research and teaching and a doctoral degree by July 1, 2015, are required. Prior business school experience or interests in business related statistical research are especially welcome. Excellent computational skills in handling large and complex data sets is a plus. Submit CV and three referees to [statrecruit@ust.hk](mailto:statrecruit@ust.hk). Hong Kong University of Science and Technology is an Equal Opportunity Employer.

### CANADA

#### Ontario

■ The Dalla Lana School of Public Health at the University of Toronto is seeking an outstanding candidate for a tenure-stream appointment within the division of biostatistics at the rank of assistant/associate professor. The expected starting date is July 1, 2015. For details, please see [www.dlsph.utoronto.ca/page/academic-positions](http://www.dlsph.utoronto.ca/page/academic-positions) or send inquiries to [acadsearch.dlsph@utoronto.ca](mailto:acadsearch.dlsph@utoronto.ca). Application review will begin January 23, 2015, and will continue until the position is filled. EOE.

## Survey Sampling Statistician

EOE

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The Department of Biostatistics is seeking candidates for a term tenure track faculty position at the assistant, associate or full professor level. The department invites applications from qualified individuals able to establish themselves as research leaders and demonstrate prowess in interdisciplinary collaborative scientific research.

We are particularly interested in researchers who can contribute to the development of statistical methodology and its applications to integration of multiple data types and/or correlated imaging data arising from emerging technologies for early detection of tumor angiogenesis, cancer staging and surveillance, and discernment of maintenance pathways. A few examples include multiparametric MRI, MR spectroscopy, perfusion CT and FDG-PET. A Ph.D. in statistics, biostatistics or a related field is required.

The Department of Biostatistics has 23 faculty members and 40 master's and doctoral level research analysts and 13 postdoctoral fellows. Faculty members are actively involved in collaborative and methodological research in such diverse areas as clinical trial design, computer-intensive statistical methodology, Bayesian methodology, decision models, cancer screening, cancer early detection, bioinformatics, genomic pathway analysis, integrative modeling of multiple types of complex data including high-dimensional genomic data, functional data analysis, image data analysis, survival analysis, statistical genetics, and behavioral and social statistics. Faculty members also have opportunities in the affiliated biostatistics doctoral programs at the University of Texas, Texas A&M University, and Rice University. The department is supported by strong resources, which includes an active quantitative research computing team with specialties in database design, Web-based clinical trial support, scientific programming and software engineering. Information about the department and programs offered can be found at Biostatistics. Further questions regarding the position may be directed to Professor Jeffrey S. Morris (jefmorris@mdanderson.org).

The University of Texas MD Anderson Cancer Center offers competitive salaries and an outstanding personal and professional benefits package. Houston is one of the world's most innovative and diverse cities, nurturing great neighborhoods, competitive private and public schools, an exceptional music and theater scene, highly acclaimed museums, international cuisine and year-round outdoor recreational activities.

Consideration of applications will continue until the positions are filled. Interested applicants should email (or mail): a cover letter outlining the relevance of their research experience and interests to the position description, a curriculum vitae, a brief statement of current and proposed research plan, and three letters of recommendation to: Faculty Search Committee, Department of Biostatistics, The University of Texas MD Anderson Cancer Center, P.O. Box 301402, Houston, TX 77230-1402, email: biostat-search@mdanderson.org

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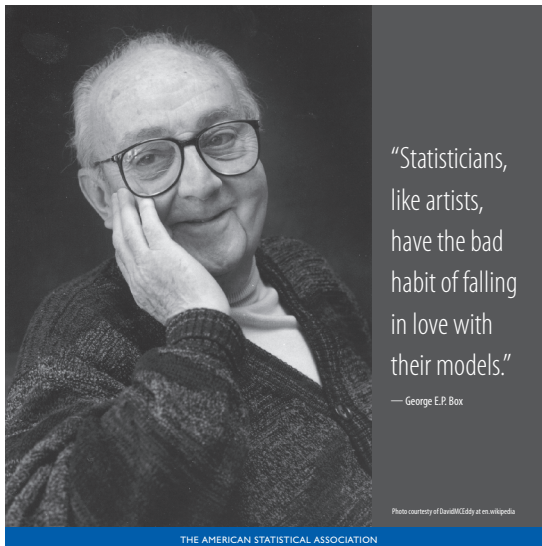
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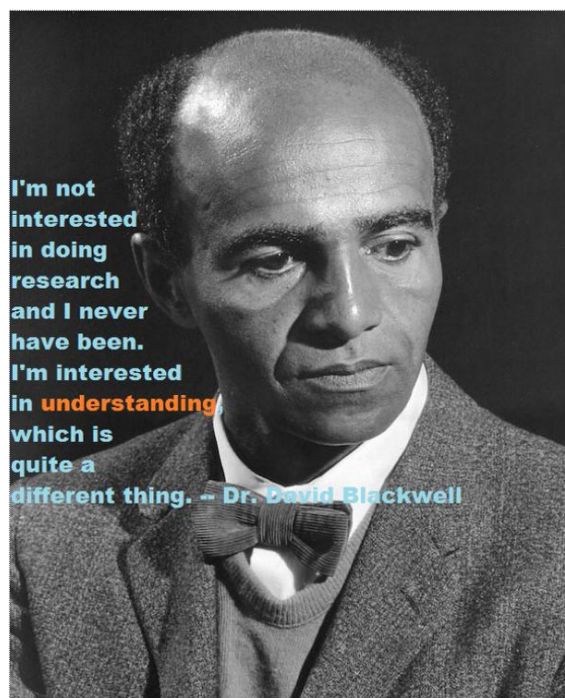


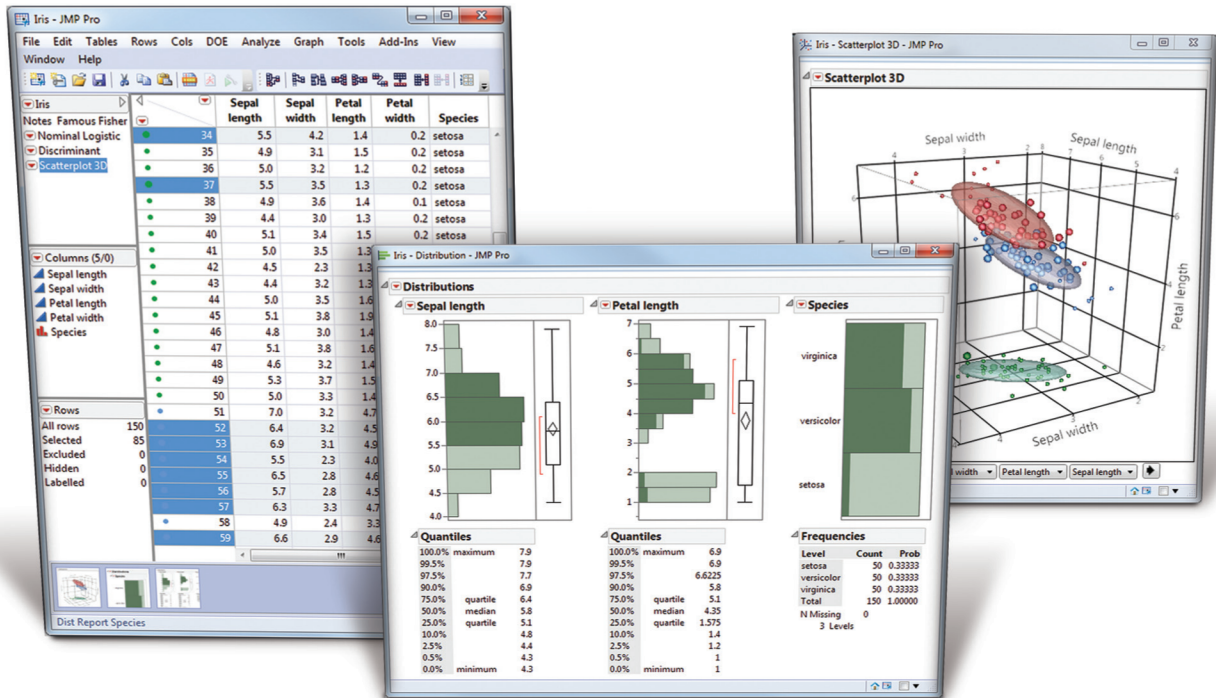
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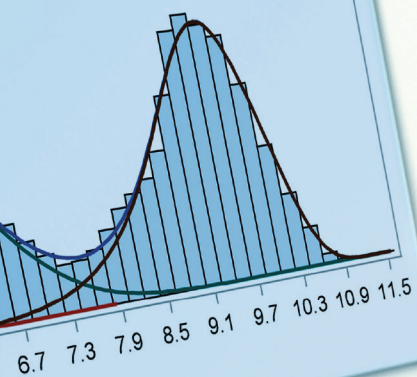
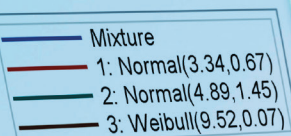
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