October 2016 • Issue #472

ANSTATNEWS The Membership Magazine of the American Statistical Association • http://magazine.amstat.org

# The Extraordinary 20Wer of Statistics

**ALSO: ASA Launches Redesigned Website** 

Statistics, Biostatistics **Degree Growth Sustained** Through 2015

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### **AMSTAT**NEWS

#### OCTOBER 2016 • ISSUE #472

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Amstat News welcomes news items and letters from readers on matters of interest to the association and the profession. Address correspondence to Managing Editor, Amstat News, American Statistical Association, 732 North Washington Street, Alexandria VA 22314-1943 USA, or email amstat@ amstat.org. Items must be received by the first day of the preceding month to ensure appearance in the next issue (for example, June 1 for the July issue). Material can be sent as a Microsoft Word document, PDF, or within an email. Articles will be edited for space. Accompanying artwork will be accepted in graphics file formats only (.jpg, etc.), minimum 300 dpi. No material in WordPerfect will be accepted.

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

> American Statistical Association 732 North Washington Street Alexandria, VA 22314–1943 USA (703) 684–1221 ASA GENERAL: assainf@amstat.org ADDRESS CHANGES: addresschange@amstat.org AMSTAT EDITORIAL: amstat@amstat.org ADVERTISING: advertise@amstat.org WEBSITE: http://magazine.amstat.org Printed in USA © 2016

American Statistical Association



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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#### 16 SCIENCE POLICY Statistics, Biostatistics Degree Growth Sustained Through 2015

This column is written to inform ASA members about what the ASA is doing to promote the inclusion of statistics in policymaking and the funding of statistics research. To suggest science policy topics for the ASA to address, contact ASA Director of Science Policy Steve Pierson at *pierson@amstat.org.* 

#### STAT*tr@k* Where Marketing and Statistics Meet: An Interview with a Marketing and Web Analytics Statistician

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.

### **Online Articles**

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

This month, the ASA is launching an education campaign to raise funds and awareness for education programs and resources that support the learning and teaching of statistics. As part of the campaign kick-off, Barry Nussbaum, the ASA's president-elect, interviewed high-school student Jenny Chen, who presented a poster at JSM 2016 in Chicago. Learn about her experiences learning statistics and presenting her poster in **"High-School Student Shares Role Statistics Has Played in Her Life."** 

In May, the National Registration and Statistics Office of Mongolia and National University of Mongolia co-hosted a series of events under the theme **Applied Statistics: Teaching, Research, and Business Innovation**. These events were organized jointly with professors from the University of Alabama, Yale University, and Penn State to help Mongolian schools teach students basic statistics and operations research, as well introduce them to career opportunities in these professions. Read about the adventure and what the students learned.

**IN MEMORIAM** Sadly, John C. Bailar III, Fred Leone, and Howard Raiffa passed away recently. To read these members' obituaries, visit *http://magazine.amstat.org*.

### Members Give Books to Library of Alexandria

In an effort to combat 'stataphobia,' Ronald LaPorte requested statistics books and lectures be donated to improve statistical literacy in developing countries (*http://bit.ly/2c4lcPx*).

The donations were considerable. Many books were bequeathed to the Research Methods Library of Alexandria from the libraries of Geoff Watson and Gerry Lieberman. Dick De Veaux also donated 27 boxes of books to the library, and the effort continues to grow.

"I am very, very proud to say that we have sufficient books for the library" said LaPorte. "It is indeed an honor to have worked with you all. Your gifts will help many improve research literacy in the world."

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# Promoting the Practice and Profession of Statistics: Engaging High-School Students and Those Who Support Them

Statistics Careers for AP Statistics and Other K–12 Classrooms Working Group

This month's President's Invited Column shares information about my presidential initiative to provide statistics career information to Advanced Placement Statistics students and other high-school students, teachers, counselors, and parents. The column is written by the working group charged with implementing this initiative, chaired by Board Member Anna Nevius (see http://bit.ly/2d4vHZ0).



Jessica Utts

Professor X has the X-Men, but their abilities pale in comparison to Professor Utts's x-squad. This talented group came together in 2015 in a secret Seattle location. Okay, not so secret. We met at JSM 2015. Anna Nevius chaired this initial meeting and, in the role of chair, has provided support and encouragement to the group over the past year. She has championed the work of the group in a variety of venues. The charge to this group was to get statistics career information into K–12 classrooms by curating existing resources and developing new resources to support ASA members who were willing to engage in K–12 student outreach activities.

The group organized their work around the following broad areas:

- Tips and tricks for preparing and delivering effective classroom presentations
- Addressing the question, "What do statisticians and data scientists do?"
- Explaining what education is required for jobs in statistics
- Collecting activities to engage students
- Highlighting the theme of "statistics plus," showing that students can combine statistics with almost any other interest
- Identifying additional resources for outreach activities

A webpage with links to more information about each of these broad areas will be part of the new ASA website. The accompanying graphics highlight what content will be included.

Initially, the focus was on preparing resources to assist ASA members in making classroom presentations; however, the group quickly realized these resources also would be useful for parents, counselors, and teachers.

From the beginning, this group has tackled projects as a team. Our geographic diversity and work constraints made it more efficient to form smaller teams to work on specific projects, but we always came together during our conference calls to brainstorm and problem solve as a group.



John Holcomb, work group member and Cleveland State University Department of Mathematics and Statistics chair, led the effort to develop the "tips and tricks" resources. Building on videos John developed, this group helped create a guide to planning and delivering an effective classroom presentation.

The Bay Area Chapter piloted these resources. The chapter is going into its eighth year of making career presentations to Menlo Atherton High School and added Castilleja Private, a school for young women that counts Grace Slick as an





Christine Franklin, ASA K–12 statistical ambassador and working group member, staffed the ASA booth at the American School Counselors Association annual meeting.

alumna, this year. (This inspired some members to shop the 50th anniversary collection of Jefferson Airplane.) Jing Huang, Bay Area Chapter president, commented, "Thank you for the resource you provided!! Really helpful information presented in such an engaging manner. Even I, a statistician for the last 20 years or so, have learned a thing or two new from that wonderful deck."

Chris Barker, a Bay Area Chapter member who helped coordinate this outreach effort, also shared this input from one of the teachers: "His recommendation is that students prefer a speaker who involves them and asks questions." This comment resonated with the group, so we have collected resources that can be used as part of classroom activities. These activities can also serve as resources for teachers.

Work group member Jason Molesky, who is executive director of technology and data services for the Lakeville Area Public Schools, created StatsMonkey (http://apstatsmonkey.com/StatsMonkey/Statsmonkey. html), a site focused on resources for teachers of AP Statistics. However, many of these resources can be adapted for a classroom presentation. Sharing activity-based resources is another outreach opportunity, and you don't need to travel to do this!

Sharon Hessney, who is AP Statistics content leader at Mass Insight Education, and Will Eagan, a Purdue University graduate student and ASA student chapter president, focused on the opportunities to engage students outside the classroom. They led the effort to organize a video contest. Contests engage students and have the benefit of a flexible schedule. A sample contest announcement and rubric for evaluating the entries are included as part of the activities resource. A contest would be an excellent chapter outreach activity and could involve mentoring students and teachers in the ASA poster and project competitions, starting a regional competition, or creating a new contest to engage students and teachers in statistics.

Two members of the work group, Rachel Braun of Melvin J. Berman Hebrew Academy and Paul Buckley of Gonzaga College High School, shared their expertise as high-school teachers who advise students and respond to parent questions about preparing for college. They led an effort to address this information need. Their work led to the creation of a flier that lists a sample of college majors that require statistics, which is also posted on the This Is Statistics website (thisisstatistics.com) and at www.amstat.org/misc/CollegeMajors.pdf. Rachel commented, "The flier's long list of majors signals to students that choosing a statistics course while still in high school is excellent preparation for future endeavors. Beyond that, the flier conveys to students that statistics provides a broadly accepted, reliable set of analytic skills with wide applications; that is, many aspects of the world they inhabit can be explored and revealed through statistical reasoning." We need your help in sharing this resource.

High-school counselors play an important role in a student's decision making. Christine Franklin, ASA K–12 statistical ambassador and work group member, and Leann Myers, who is a professor of biostatistics and bioinformatics at the Tulane University School of Public Health and Tropical Medicine, represented the ASA at the American School Counselors Association annual meeting. This was an excellent opportunity to share resources with counselors. Chris reported that the list of majors was a hit with the counselors who visited the ASA booth. This is another example of outreach that, although not part of the original charge of the group, quickly emerged as essential.

AP Statistics teachers are responsible for teaching a challenging curriculum. When asked what his colleagues need, Paul Buckley emphatically said, "Resources!" The work group has put together a collection of resources to support curricular needs and make teachers aware of statistics career opportunities. Allan Rossman—work group member, former AP Statistics chief reader, and professor in the department of statistics at Cal Poly - San Luis Obispo—shared resources to respond to this need. We need your help in adding to this collection and in making teachers aware of these resources. This is another opportunity for valuable outreach that doesn't require travel.

Continuing the theme that identifying resources and encouraging teachers to participate is an essential component of outreach, Ann Cannonwork group member and chair of the Cornell College Department of Mathematics and Statistics-encouraged teachers in her area to participate in the 2016 Meeting Within a Meeting (MWM) at ISM. Ann was able to have lunch with the teachers and share their MWM experience. Throughout the year, the ASA hosts webinars for K-12 teachers; your help in spreading the word about these resources would be another outreach opportunity.

An important question in any student outreach initiative is, "What do statisticians and data scientists do?" So this was a focus for the work group. The videos and other

resources developed and provided as a part of the *This* Is Statistics campaign are engaging and great for responding to this question. Devan Mehrotra, work group member and associate vice president at Merck Research Laboratories, guided the group's efforts in this area and helped identify additional resources while highlighting the importance of focusing on the required skills and knowledge so students recognize the breadth of opportunities. As Devan commented in a *U.S. News and World Report* article "People need statisticians, folks with the right level of training, who ask the relevant questions, who know how much data should be collected and know how to employ statistical principles." Please



share your suggestions for articles, videos, and other resources that we should include on the new site.

Outreach is definitely a community effort, and the work group was fortunate to be able to collaborate with Jesse Chittams, chair of the ASA Committee on Minorities in Statistics, who has a member initiative focused on equipping the present generation with the resources necessary to make significant inroads into this rapidly evolving job market. The resources developed as part of his initiative will be part of the outreach website.

We have highlighted the work of the outreach group by identifying the group members who have led various efforts. But, there is another important contributor: you. We need your help to build a speakers bureau that meets the requests for presentation. Please visit *http://bit. ly/2cXpahx* to volunteer.

Whether volunteering for the speakers bureau, proactively reaching out to local AP Statistics classrooms, mentoring students and teachers using the ASA K–12 outreach activities, or providing other ideas or comments, we welcome your involvement. There are also

opportunities for college students to get involved in service learning by visiting classrooms or providing mentoring. Looking to the future, we want to continue to develop these resources and reach out to other interested groups. Please let ASA Director of Education Rebecca Nichols (*rebecca@amstat. org*) and ASA Director of Strategic Initiatives and Outreach Donna LaLonde (*DonnaL@amstat.org*) know your ideas for growing our outreach efforts. With your help, we can promote the practice and profession of statistics and get more students interested in pursuing a career in statistics or studying statistics to enhance their preparation for whatever career field they pursue. ■



# **ASA Launches Redesigned Website**



MORE ONLINE Please explore the website at www.amstat. org and let us know what you think! Send your feedback to webmaster@ amstat.org. Ron Wasserstein, ASA Executive Director

am happy to announce the launch of the ASA's newly redesigned website. As an organization of and for statisticians and data scientists, our aim with the new website is to highlight the contributions made by our members and encourage the public to learn more about our growing and dynamic discipline.

The process of revamping the online face of the ASA began more than a year ago when a focus group of members provided feedback on early-stage structural layouts and wireframes and performed real-world tasks while thinking aloud.

And the journey of getting to where we are now was an interactive and insightful one, yielding a wealth of data. Our site review revealed that the "What is Statistics?" page is one of the most visited within the site. It now hosts engaging information about the practice of statistics and fun activities, including a contest we call "Submit Your Statistical Haiku." These and other new elements will be regular features to encourage ongoing engagement and return visits.

Applying member feedback, the ASA staff reviewed, refined, and generated ideas for new content. Behind the scenes, the ASA information technology staff worked tirelessly to deliver a refreshing website. Reorganized and designed to be responsive to user needs, the new amstat.org offers quick and easy access to your essential member information and is now compatible with multiple platforms. So, whether you are visiting from your desktop or your phone, you'll experience an adaptive, responsive design.

In support of the ASA's mission to promote the practice and profession of statistics, the website will be updated frequently to emphasize issues and information essential to the fields of statistics and data science. Amstat.org will bring you and the general public news of association initiatives, activities, events, and opportunities to engage in the ASA and larger world of statistics.

# ASA Extends Outreach to School Counselors at ASCA Event

A SA members Christine Franklin and Leann Myers recently represented the ASA at the conference of the American School Counselors Association in New Orleans. As part of *This* Is Statistics (TiS)—the ASA's public relations campaign



Myers



Franklin

to make students aware of the many reasons to take statistics—Franklin and Myers spoke to conference attendees coming by the ASA booth in the exhibit hall. Franklin also presented in a special session titled "Careers Your Students Need to Know About."

This is the ASA's first time exhibiting at the ASCA conference, but the ASA plans to make it an annual activity based on the strong endorsement by both Franklin and Myers to do so.

"Exhibiting at this conference brought an awareness to counselors about the importance of statistics at the school level that was not necessaraid Franklin

ily on their radar," said Franklin.

Myers noted many counselors took materials from the booth to share with teachers who were teaching statistics in their schools.

This year's conference attracted a record 2,835 attendees, a record.

The most popular items at the both were the flyer listing scores of majors requiring statistics (*www.amstat.org/misc/CollegeMajors.pdf*) and the TiS stickers. Franklin and Myers also reported the National Center for Health Statistics poster that reads "I want to be a statistician just like my mom" (*www.cdc.gov/nchs/about/poster.htm*) was effective.

Myers is professor of biostatistics and bioinformatics at the Tulane University School of Public Health and Tropical Medicine. Franklin is retired from the University of Georgia and the

#### Presenting at a career fair? Keep in mind these ASA resources:

**ASA education website** (*ww2.amstat. org/education*). See resources for students and educators.

*This* Is Statistics (*http://thisisstatistics. org*). See resources under Educators and Counselors tabs.

**Statistical Significance** series (*www.amstat.org/policy/statsig.cfm*).

ASA's inaugural K–12 Statistical Ambassador (*http://bit.ly/2cfdVSX*).

The ASA also exhibits regularly at the annual conference of the National Council of Teachers of Mathematics and the USA Science and Engineering Festival. ■

### Conference Links Statisticians, Data Analysts, Astronomers

Carnegie Mellon University hosted more than 120 researchers June 6–10 for Statistical Challenges in Modern Astronomy VI, bringing together experts in statistical methods and machine learning with astronomers and cosmologists to discuss pressing inference problems facing this data-rich field.

Topics at the meeting ranged from the study of exoplanets and the analysis of astronomical time series to the estimation of key cosmological parameters using the subtle signals found in the weak lensing of galaxies. Emphasis was placed on the participation of not only statisticians and computer scientists with expertise in the analysis of astronomical data, but also experts in the use of new analysis methods of particular interest and promise for astronomy. These included variational inference and deep learning.

In addition to invited and contributed talks, there were more than 40 poster presentations. For more information about the conference, see *scma6.org*.

# Highlights of the July ASA Board of Directors Meeting

#### **2016 Board of Directors**

Jessica Utts, President

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**Rob Santos**, 2nd-Year Vice President

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Wendy Lou, 2nd-Year Council of Chapters Rep

Paula Roberson, 1st-Year Council of Chapters Rep

Cyndy Long, 3rd-Year Council of Sections Rep

Anna Nevius, 2nd-Year Council of Sections Rep

**Eileen King**, 1st-Year Council of Sections Rep

Ming-Yen Cheng, International Representative

**David van Dyk**, Publications Representative

**Ron Wasserstein**, Executive Director and Board Secretary

n the Friday and Saturday prior to JSM 2016 (July 29–30), ASA President Jessica Utts convened the ASA Board meeting at the Chicago Hilton Hotel. The highlights of the meeting follow.

#### **Discussion Items**

- The board devoted much of its meeting time to reviewing and revising the ASA's Strategic Plan. Members will have the opportunity to comment on the proposed revisions before the board considers them again at its November meeting.
- The board also discussed a revised vision statement for the ASA. No statement was finalized, but a working version was put forward for additional consideration: "A

world that relies on data and statistical thinking to drive discovery and decisions."

#### **Action Items**

- President-elect Barry Nussbaum selected Wei Shen, senior director of global statistical sciences at Eli Lilly and Company, to serve as member (2017–2018) and chair (2017) of the Nominations Committee.
- A revised charge to the SPAIG Committee was approved.
- The Board approved the 2017 budget, which anticipates revenue and expenditures at about \$10.2 million.
- Three cities (Boston, Toronto, and Montréal) are under consideration for

JSM 2023. Staff will negotiate with these cities, and the ASA Executive Committee will make the final determination.

• The board endorsed the revised *Guidelines for Assessment and Instruction in Statistics Education (GAISE) College Report* and praised the committee members who updated the guidelines not only for a fine outcome, but also for a sound process.

#### **Reported Items**

- Mingxiu Hu, ASA treasurer, reported to the board on the status of the ASA's investments. He provided the board with a detailed look at how the market and our investments have done in 2016—much better than 2015.
- Associate Executive Director and Director of Operations Steve Porzio reported on the second quarter 2016 ASA end-ofyear financials. Membership is up and JSM attendance looks positive. (NB: Indeed, it was! JSM 2016 set a record, with more than 7,200 attendees.) Porzio said he expects year-end net revenue to be positive.
- Utts reported on the progress of her strategic initiatives for 2016, and Nussbaum finalized his initiatives for next year. Details will be in *Amstat News* over the coming months.

- As it always does, the board heard detailed reports from the Council of Chapters Governing Board (COCGB) and Council of Sections Governing Board (COSGB) about their respective activities. The COCGB is helping to develop additional funding to support chapter activities. The COSGB has focused on increasing and better communicating the value of section membership.
- Director of Science Policy Steve Pierson reported on numerous aspects of the ASA's science policy and advocacy efforts. He welcomed Amy Nussbaum, our first science policy fellow, to the staff. She is already making important contributions to the ASA's work.
- Board member Paula Roberson, who serves as an ASA representative to the Joint Committee on Women in the Mathematical Sciences (JCW), reported on the activities of the JCW and asked for board feedback on how to add societies to the organization.
- Anna Martin of the University of Auckland reported to the board on the state of statistics education in New Zealand and discussed ways the ASA and the New Zealand Statistical Association can collaborate to improve statistics education.
- Hetan Shah, executive director of the Royal Statistical Society (RSS), reported on the strategic plans of the RSS. He talked with the



ASA President Jessica Utts, ASA Executive Director Ron Wasserstein, and Presidentelect Barry Nussbaum during the ASA Board meeting at the Chicago Hilton Hotel.

From left: 2016

Photo by Eric Sampson/ASA Journals Manager

board about the future of scientific societies. He said societies might think of themselves as movements, rather than organizations, not only giving more to members, but asking more from them.

The board has its final meeting of 2016 November 18–19 in Alexandria, Virginia. ■



ASA, in cooperation with the Bureau of Labor Statistics (BLS) and the Bureau of Economic Analysis (BEA) under a grant from the National Science Foundation (NSF) is pleased to announce a Senior Research Fellow Program for 2017.

The Fellowship Program at BLS allows research fellows to come to the BLS and use BLS data and facilities, and interact with BLS staff. More information is available on the BLS website at *http://www.bls.gov/osmr/asa\_nsf\_bls\_fellowship\_info.htm* or in our brochure at *http://www.amstat.org/careers/pdfs/* ASANSFBLSFellowshipProgram.pdf

#### Application Deadline: January 2, 2017

The Fellowship Program at BEA offers a unique opportunity to perform research at the Bureau of Economic Analysis. BEA produces key economic statistics that influence government policy, forecasting and business investment. Fellows will have access to BEA data and the expertise of BEA staff. More information is available at: www.bea.gov/research/fellowship\_program.htm or in our brochure at http://www.amstat.org/careers/pdfs/BEA.pdf

#### Application Deadline: November 18, 2016

#### ELIGIBILITY

An academically recognized research record and considerable expertise in the area of proposed research required. U.S. government employees are not eligible to apply. Applicants must be affiliated with a U.S. institution.

#### CONDITION OF APPOINTMENT/BENEFITS

Research will be conducted at the government agency. The stipend received is commensurate with qualifications and experience. Term of appointment is flexible. Fringe benefits and travel allowances are negotiable.

## **Oregon State's New Programs to Address Data Scientist Shortage**

The United States facing a shortage of more than 1 million skilled data scientists, Oregon State University will train an array of new professionals through a pair of online graduate programs in data analytics.

Students can pursue a master's degree or graduate certificate in data analytics through Oregon State Ecampus, the university's online education division. The programs, developed by OSU's College of Science, integrate the university's strengths in statistics, computer science, and mathematics.

### ASA Members Contribute to Report Detailing Conditions, Mortality in Syrian Prisons

Megan Price, Human Rights Data Analysis Group Executive Director

ASA members Megan Price and Patrick Ball of the Human Rights Data Analysis Group (HRDAG) recently coauthored a technical memo that accompanied the Amnesty International report '*It Breaks the Human*': *Torture, Disease, and Death in Syria's Prisons.* The report details the conditions and mortality in Syrian prisons from 2011 to 2015 and includes data analysis conducted by HRDAG.

The technical memo explains the methodology, sources, and implications of the report's findings. The HRDAG team used data from four sources to find a total of 12,270 fully *documented*, identifiable people killed while in detention. The team of scientists then used multiple systems estimation to estimate the number of *undocumented* killings in the prisons during the same period.

The estimated total (documented and undocumented) deaths is 17,723 (95% credible interval (13,409, 18,713)). In effect, 25 percent of the killings in detention were unreported. The estimate includes only those killed while in detention, not the "field executions" of soldiers who were killed, for example, for refusing to fire on civilians.

The estimate of 17,723 killings is conservative due to the strict criteria the team used to classify killings and the difficulty of collecting information about what happens in detention centers.

HRDAG is a nonprofit, nonpartisan organization that applies rigorous science to the analysis of human rights violations around the world. For more information, visit *https://hrdag.org.* 

This interdisciplinary approach will train students in many data analysis techniques and, program leaders say, make them appealing to employers in every industry.

"Data analytics is playing a major role in drug discovery, climate change, and business and policy decisions. It is an exciting time to be a data scientist in our data-enabled world," said Sastry G. Pantula, dean of the college of science.

"These graduate programs are unique in the marketplace," continued Pantula. "We build global leaders with strong critical thinking and problem solving skills who are grounded in the statistical and computational sciences."

According to data from the McKinsey Global Institute, the United States could face a shortage of up to 180,000 people with deep analytic skills by 2018 and an estimated 1.5 million managers and analysts.

The need for businesses worldwide to be able to make sense of data is at an all-time high. Data affects every sector, from finance and travel to health services and neighborhood grocery stores.

"When a store gives you a receipt, it might also give you a coupon for cat litter. It's tailored to you because it recognizes you just bought cat food," said Virginia Lesser, professor and chair of OSU's Department of Statistics. "That's data analysis that's being done immediately to improve peoples' businesses. It's everywhere."

Oregon State's new programs will expose students to the whole data pipeline, from collecting data to analysis to reporting to stakeholders. Students in the 45-credit master's program will be equipped with advanced statistical and predictive modeling skills and strong computational and programming skills to manage and analyze large data sets.

All classes in the master's program and the 18-credit graduate certificate program were developed and will be taught by faculty from OSU's College of Science and School of Electrical Engineering and Computer Science.

"Our faculty recognize that data are often complex, and we know how to deal with messy data," Lesser said. "It's important for students to know that they'll learn from faculty who have exposure to real data and extensive hands-on experience."

To learn more about these data analytics programs, visit *ecampus.oregonstate.edu/data.* ■

# **Abstracts Wanted for Nonclinical Biostatistics Conference**

conference devoted to nonclinical biostatistics—a vibrant and challenging application area in biopharmaceutical research—will take place June 12–14, 2017, at the Fiber Optics Building at Rutgers University in Piscataway, New Jersey.

With the theme "Statistics Accelerating the Pharmaceutical Sciences," the conference will provide a venue for presenting and discussing scientific and statistical issues relevant to nonclinical biostatistics. The program will feature 2.5 days of talks, a poster session, and round-table discussions, with keynote speakers ASA President-Elect Lisa LaVange and John Storey from Princeton University. Also, the following short courses will be offered June 12:

- Practical Bayesian Calculations in Proc MCMC
   Instructor: Fang Chen, SAS Institute
- *Topics of Advanced Experimental Design* **Instructor:** Steve Buyske, Rutgers University

Steven Novick and John Kolassa, Conference Co-Chairs

Abstracts on the topics of discovery, biomarkers, diagnostics, CMC, manufacturing, safety, and pharmacology are being accepted and should be sent to *NovickS@medimmune.com*.

Graduate students are encouraged to submit poster abstracts to *Katja.s.Remlinger@gsk.com*. Student registration is \$100 with limited scholarships available to offset travel costs. Preference will be given to students who present posters. The best student poster will be awarded a prize of \$250.

The conference is jointly organized by statisticians from industry, academia, and the FDA in collaboration with the Rutgers University Department of Statistics.

All information, key dates, and registration materials will be posted as they become available on the conference website at *http://stat.rutgers.edu/home/kolassa/* NCB2017. Questions, suggestions, and comments may be directed to NovickS@medimmune.com. MORE ONLINE Subscribe to the biostatistics LinkedIn page to receive up-todate conference information: www.linkedin. com groups/ 8547808.

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### NC State Laser Foxes

James Earle, ASA Marketing and Communications Coordinator

### **Before Laser Foxes**

Laser Foxes' precursors include Zombies and Treadmills, a simple illustration of sequential decision making, and LaserCat, an implementation of q-value sampling and moment updating from the paper "Bayesian Q-Learning" by Richard Dearden, Nir Friedman, and Stuart Russell. They all share the common theme of finding an optimal strategy in a Markov decision process, but as the complexity of the games increased, the students explored more sophisticated algorithms to build the AI.

> n April 2016, the American Statistical Association shared its Discovery Through Statistics booth at the USA Science & Engineering Festival with a team of statistics students from Laber Labs, the creation of North Carolina State University's Eric Laber. They were in Washington, DC, to showcase their latest project, a video game called Laser Foxes.

MORE ONLINE

You can learn about other projects from Laber Labs at *www.laber* -*labs.com*. With its retro graphics and simple controls, Laser Foxes has the look and feel of an arcade classic. In the game, you control a laser-shooting fox with the goal of shooting down your opponent, an AI-controlled fox that not only shoots back, but adapts to your playstyle. As you move about the screen, taking cover behind colored blocks and gathering power-ups, the AI classifies your behavior and adopts the strategy best suited to counter your own. Among adults and children alike, Laser Foxes was a hit—and thanks to the game's design and the team's explanations of its underlying statistical methods, each contender left with a better understanding of the different applications of statistics.

The focus of Laber Labs is the development of methodology for data-driven decision making in complex environments, with major application areas in precision medicine, management of infectious diseases, artificial intelligence for gaming, and STEM outreach. Their games are tools to study, implement, and test various machine learning and optimization algorithms that can be used to solve real-world problems. Laser Foxes is one such tool. "Developing Laser Foxes was a lot of work, and they did all of it," Laber jokes. He is Laber Labs' eponymous principal investigator and the team's faculty supervisor at North Carolina State University. Laber acts as a sounding board and facilitates brainstorming sessions on the artificial intelligence and educational components of the students' work, and Laser Foxes emerged after he suggested the students add a competitive component to their games. In the hands of Maria Jahja, Nick Meyer, Eric Rose, and Marshall Wang, the idea took off quickly.

"I'm a big gamer," Wang remarks, "and I've found the best games have simple rules, but are designed to allow different play styles and strategies." Using the AI from precursors Zombies and Treadmills and LaserCat as starting points, the team worked to define those strategies, designing the game's four deterministic AIs and a new tracking algorithm.

First, the computer player uses multinomial logistic regression to classify the human player as one of four behaviors: Forager, Aggressor, Camper, or Evader. The result is what they call the "FACE" of the player. Foragers hunt for power-ups, aggressors chase after their opponent, campers stay in one spot, and evaders run away. Using the estimated human behavior and other environmental variables gathered in real time, the computer player then decides which of the four behaviors to follow itself. Training that decision rule is done using policy search.

The result is an AI that challenges players to recognize its methods to beat it. Most commonly, the player exhibited traits of the Camper, keeping a safe distance and waiting until it better understood how to attack the opponent. But as Jahja noted, "Once people learned how the game worked, how it used statistics to classify their behavior, they would try to confuse the AI by erratically changing their strategy."

Communicating those statistics was a design challenge in itself, and the team had to strike a balance between entertainment and education. "You just don't have a lot of time to get people involved in a game or explain the statistics behind it," Meyer explains, "so you have to ask, 'What are the points we're trying to get across, and how quickly can we do it?"

#### Laser Foxes Team Members



Photo courtesy of Laber Labs

#### ERIC ROSE, **PhD Student**

**Research interests:** machine learning, statistical computing

**Current project:** sample size calculations for dynamic treatment regimes

NICK MEYER, PhD Candidate

**Research interests:** reinforcement learning, machine learning, robotics

**Current project:** adaptive control strategies for large spatio-temporal decision problems

#### **ERIC LABER** (Not pictured)

Associate Professor of Statistics and Faculty Scholar, North Carolina State University

#### LONGSHAOKAN "MARSHALL" WANG, PhD Student

**Research interests:** artificial intelligence, machine learning, sufficient dimension reduction

**Current project:** sufficient Markov decision processes

#### MARIA JAHJA, Undergraduate Student

**Research interests**: econometrics. forecasting, time series, machine learning

Current project: reinforcement learning for video games, web-based education

Their solution is to show players their FACEthe extent to which their behavior fits into each of the four defined playstyles—as four bars on the side of the screen. As the bars shift, players can see how they're playing, learn what the AI is 'thinking,' and change their behavior to beat it.

This interaction between player and AI was a new challenge for Laber Labs, but the applications are exciting. "We're working on more adversarial games that adapt to what the player is doing using adaptive search, and that opens up a lot of possibilities for behavioral shaping," Laber explains. "Can the AI push you to behave in a certain way? If we can get you to be more aggressive in the game until you've overextended yourself, for example, we can take those lessons into the educational materials we're working on next. We can use statistics to prompt kids to behave in a way that makes it easier to learn faster or recall information better."

The next game in development will put these ideas to the test by pitting the player against an infestation of termites. The game's AI aims to inform the player of weaknesses in their strategy and provide them with suggestions to improve their approach.

Other projects in the pipeline include a library installation that will allow patrons to play one of their games while a computer attempts to imitate them in real time and an animated web series about artificial intelligence and gaming. Targeted at middle- and high-school students, the web series' goal will be to inspire the best minds for the next generation of statisticians and data scientists.

Games like Laser Foxes are stepping stones to bigger applications and tests for valuable statistical methods. As Wang concludes, "Coming back from the festival, you could see good gaming and good graphics are very useful for popularizing statistical methods and attracting young audiences. That's the goal; improve the gaming experience and graphics while improving statistical algorithms."

#### Watch a video of LaserCat in action and read

more about the algorithm it uses at youtu.be/ F17UhwmgGeA.

**MORE ONLINE** 

# Temple Renames Department to Reflect Discipline's Evolution

The Temple University Department of Statistics, housed in the Fox School, was renamed the department of statistical science recently. The department had been known as the department of statistics since its establishment in 1929, 11 years after the founding of the Fox School.

"Rebranding our department as the department of statistical science reflects the breadth of our department's academic research, the discipline's changing landscape, and our department's renewed focus on engaging in quality research that reshapes the field of statistics and training new generations of statistically skilled graduates," said Sanat K. Sarkar, chair of the department of statistical science. The new department name, Sarkar added, is reflective of the discipline's evolution into one that "develops newer subfields and its interdisciplinary research with scientists in modern scientific investigations involving complex data."

The department also launched its Bachelor of Science undergraduate degree program in statistical science and data analytics. The department continues to offer its graduate programs leading to the master's (MS) and doctor of philosophy (PhD) degrees in statistics under the new name. ■

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#### MASTER'S NOTEBOOK

# From 'You Can't' to 'I Did': Master's-Level Statistician Puts Experience to Work for Others

was always told I wasn't good enough to do math, as I got a C in my general certificate of education at 16. Always one to take up a challenge, I thought, "Why take an easy degree when I can challenge myself?" So here I am with a degree and a master's in mathematics and statistics.

Because of my experience, I have worked to help others who want to go into math and statistics overcome the obstacles they might find in their way. This has led me to work as a STEM ambassador to promote math and statistics as a member of the Early Careers Mathematicians Committee for the Institute of Mathematics and Its Applications and within Statistics without Borders.

STEM ambassadors go into schools, colleges, and universities to promote science, technology, engineering, and math. This area of education is suffering because there are not enough teachers and, therefore, the uptake of math-related subjects in schools is falling. As ambassadors, we explain our own careers, talk through our experiences, and encourage people into this area of education.

The Early Careers Mathematicians Committee is an offshoot of the Institute of Mathematics and Its Applications. It is for all those within the first 15 years of their careers and offers conferences and networking opportunities.

As conference lead, I organize the biannual conferences. Past conferences have been career and industry focused. The spring conference hosted Hannah Fry, an amazing speaker on the subject of math. She can take the most complicated theory and make it easy to understand.

Moving forward, I am looking to secure sponsors for our upcoming conferences and speakers who will grab everyone's attention. The speakers provide excellent advice about careers and show the fun side of mathematics. Also, members of the careers committee attend and can provide more tailored advice on careers.

I also volunteer for Statistics without Borders, an all-volunteer organization that does pro-bono work

for clients. I have led and managed a global team of statisticians with varying skill levels and worked on valuable projects such as the Ebola Project. Additionally, I have worked with the UN, Map Action, and NetHope.

MapAction is a humanitarian mapping charity that works through skilled volunteers. Specialist teams help save lives and minimize suffering by making the response to humanitarian emergencies as targeted, efficient, and effective as possible.

NetHope is one of the world's largest nonprofits with technology innovators worldwide. It acts as a catalyst for productive collaboration, innovation, and problem solving to reimagine how technology can improve the world.

I produced maps in Tableau to show where the reception area was for different types of communications equipment so the Ebola aid teams could ensure they took the right equipment and could stay in contact with the base of operations. I also produced geographical and visual analysis for the Digital Humanitarian Network (DHN) to provide better crisis relief in Nepal after the earthquake. The DHN is a network of organizations that provide information-based response and relief services to communities affected by disasters and formal response actors directly servicing these populations.

Being part of Statistics without Borders has enabled me to have an impact on some of the most important issues in our world today and to indirectly help save lives. It is extremely rewarding, and I recommend anyone join, as all levels of statisticians, administrators, and writers are needed.

As someone who has risen to the various challenges of mathematics and statistics and then taught these subjects, I encourage everyone to give them a go. I think some changes need to be made to the educational system in order for everyone to be able to access the teaching material in their own way, and I certainly don't think anyone should be told math is too hard or that they cannot do it, because everyone can access the material, just in their own way.



**Marie Oldfield** is a principal statistician for the UK Government. She has worked as a contractor for most of her career, but has been with the Ministry of Defence for the past two years. Previously, she worked in finance and management consulting. She is involved in local community efforts and Statistics without Borders. She is also a conference leader for the Institute of Mathematics and Its Applications.

### SCIENCE POLICY Statistics, Biostatistics Degree Growth Sustained Through 2015

Steve Pierson, ASA Director of Science Policy

Bachelor's and master's degrees earned in statistics and biostatistics continued their strong growth, while doctoral degrees were flat from 2014 to 2015.

According to the latest preliminary data release from the National Center for Education Statistics, bachelor's degrees grew 19% to 2,336 (31 of which are for biostatistics) and master's degrees increased 14% to 3,415 (646 for biostatistics), as seen in Figure 1. Doctoral degrees increased by 2 to 580 (185 for biostatistics). The growth in master's degrees in statistics is particularly striking, as seen in Figure 2, with a 35% increase over 2014 (9.8% for master's degrees in statistics).

Accompanying this growth is an increase in the number of universities granting master's degrees in statistics (from 132 to 136), master's degrees in biostatistics (51 to 55), and PhDs in biostatistics (31 to 33). After all-time highs in 2014 for number of universities granting doctoral degrees in statistics (67) and bachelor's degrees in statistics (115), the respective 2015 numbers are 64 and 114.

There were many universities granting statistics and biostatistics degrees for the first time (since 2003) in 2015:

- Bachelor's degrees in statistics: Albion College, Amherst College, Arizona State University-West, California Baptist University, Siena Heights University, and Williams College
- Master's degrees in statistics: Kennesaw State University, National University, and New York University

- Master's degrees in biostatistics: Michigan State University, Indiana University-Purdue University-Indianapolis, Rutgers University, and University of Massachusetts-Amherst
- **PhD in statistics:** University of Cincinnati
- PhD in biostatistics: Pennsylvania State University-College of Medicine, University of Kansas, and University of Massachusetts-Amherst

The top degree-granting institutions over the last five years are shown in tables 1–5 for all categories except biostatistics bachelor's degrees (comprehensive list available at *http://bit. ly/1govqvL*).

#### Table 1-

Top Five Universities Granting Statistics PhDs for 2011–2015

tatistics PhDs	2011	2012	2013	2014	2015	2011– 2015	2003– 2015
orth Carolina State University	14	20	12	17	19	82	219
wa State University	14	9	15	28	14	80	155
exas A&M University	16	18	10	7	15	66	139
enn State	14	9	12	9	17	61	122
niversity of Wisconsin	13	9	13	10	13	58	152
ubtotal	71	65	62	71	78	347	787
Total	344	345	379	397	395	1,860	4,081







Biostatistics PhDs	2011	2012	2013	2014	2015	2011– 2015	2003– 2015
The University of North Carolina	12	16	9	22	24	83	94
University of Pittsburgh	15	9	12	14	18	68	121
University of Michigan	10	15	15	12	11	63	88
Harvard University	9	17	10	13	12	61	86
The University of Texas Health Science Center	7	9	13	7	19	55	93
Subtotal	53	66	59	68	84	330	482
Total	125	173	151	181	185	815	1,621

#### Table 2—

Top Five Universities Granting Biostatistics PhDs for 2011–2015





Statistics Master's Degrees	2011	2012	2013	2014	2015	2011– 2015	2003– 2015
Columbia University	242	288	294	287	396	1,507	2,626
The George Washington University	20	29	67	155	118	389	448
Rutgers University	47	62	79	94	96	378	766
University of Illinois at Urbana-Champaign	46	36	61	67	41	251	481
University of Michigan	44	47	55	46	57	249	373
Subtotal	399	462	556	649	708	2,774	4,694
Total	1,919	2,026	2,305	2,523	2,769	11,542	22,787

Tables 3–5—Top Five Universities Granting Statistics and Biostatistics Degrees for 2011–2015

Biostatistics Master's Degrees	2011	2012	2013	2014	2015	2011– 2015	2003– 2015
Columbia University	30	31	37	34	50	182	322
University of Michigan	29	25	38	24	41	157	349
Boston University	15	19	21	45	52	152	298
Harvard University	12	11	24	16	32	95	166
The University of Texas Health Science Center	9	15	28	21	20	93	140
Subtotal	95	101	148	140	195	679	1,275
Total	359	386	464	485	659	2,353	4,468

Statistics Bachelor's	2011	2012	2013	2014	2015	2011– 2015	2003– 2015
UC Berkeley	88	99	143	160	215	705	1,064
Purdue University	77	100	135	197	183	692	781
University of Illinois at Urbana-Champaign	30	52	67	91	111	351	463
UC Davis	32	55	53	54	60	254	392
University of Minnesota	28	52	50	57	66	253	383
Subtotal	255	358	448	559	635	2,255	3,083
Total	1,128	1,390	1,714	2,019	2,367	8,618	13,888

#### **Demographics**

Figure 3 shows the percentage of statistics and biostatistics degrees earned by nonresident aliens. The percentages generally increased for each degree over the last five years, the largest percentages being for PhDs in statistics and the smallest for bachelor's.

Figure 4 shows race and ethnicity data for the degrees granted to U.S. citizens or residents. For the five degrees (all but biostatistics bachelor's for which the numbers are small), the percentage of degrees going to those of American Indian or Alaska Native (AIAN) descent is essentially 0%; Asian (ASIA)

descent is 20%; black or African American (BKAA) descent is 3–6%; Hispanic or Latino (HISP) descent is 3–6%; Native Hawaiian or Other Pacific Islander (NHPI) descent is 0–1%; White (WHIT) descent is 60%; two or more races (2MOR) is 2%; and race/ ethnicity unknown (UNKN) is 4–9%.

For percentage of degrees earned by women, the level held steady at about 44% for bachelor's degrees in statistics; about 47% for master's degrees in statistics; and 59% for master's degrees in biostatistics. For PhDs, the percentage was down a few points to 35% for statistics and 51% for biostatistics. ■

#### STAT*tr*@k

# Where Marketing and Statistics Meet: An Interview with a **Marketing** and **Web Analytics Statistician**

Max Schleicher, Insureon



Hossain Pezeshki earned a PhD in applied probability in electrical engineering from the University of Waterloo. He is now senior data scientist at Insureon, where he oversees forecasting, model building, and all things mathematical for the nation's fastest-growing online insurance agency. ong before a company rolls out a new advertising campaign, chances are a statistician designed a test, forecasted the project, and set up parameters to track its success. Hossain Pezeshki—an engineer, probabilist, and mathematician—explains how he found a home in web analytics and marketing and what students of statistics can do to build the necessary mathematical skills to be successful in marketing.

#### Let's start with the basics. How can a marketing team use statistical analysis? Admittedly, this is a broad question, but give us a little background on how you apply statistical methods in marketing and web analytics.

An easy place to start is forecasting. Forecasting is looking at historical trends and trying to project where certain trends are going to go. In marketing, you can come up with intervention models, which allow you to forecast what would happen if you don't make any changes to your processes and compare it to forecasts that show what would happen if you did make those changes—or having made a change, whether your observation can quantify the impact of the change.

So when your company is gauging whether to implement a new marketing effort, they can run it by you?

Exactly.

#### This kind of work must be satisfying intellectually. Is it the intellectual challenge you enjoy most about being a statistician?

Actually, what I find most satisfying is not the intellectual challenge, but when I see that my work is assisting other people. That puts a feather in my cap. That makes me very happy.

For instance, the shortest project I ever had was a two-day project. A company wanted to tweak their telecommunications protocol. Basically, in a matter of microseconds, my model would give them results that would have taken weeks or months to collect on a real network. And here's the interesting thing: When I projected the pictures on the whiteboard, the engineers' instincts told them that, yes, the shapes of the curves I produced are exactly like what they would get. My work made intuitive sense to them. That's what I find satisfying.

#### Obviously, when you're working in web marketing, you're not dealing with a closed system. When a company is doing so much of its business online, you're in a shark tank with other web pages and all kinds of variables that are hard to quantify. How does that throw a monkey wrench into things?

Well, I can't go into that level of detail because I have not solved the problem yet. Obviously, the more information you have, the more meaningful your results. But even when you're surrounded by unknowns, I can tell you that just having the history of your own signal alone is extremely helpful. That allows you to do all kinds of things.

#### How did you first get into statistical analysis, and why did you choose it over other fields of mathematics?

Actually, my formal education was not really in statistics. My formal education was in the theory of probability. Now, of course, the theory of probability can be seen as the foundation of statistics, or you can think of statistics as the practical application of probability theory. Frankly, for years, every time I looked at statistics, I was repulsed by it. I found the way professors would talk about "normal distributions" troubling. My question was always, "How do you know that this thing should be normal?"

#### So what changed?

There was a very good book written by a probabilist on statistics—professor R.J. Serfling, a great American mathematician—called *Approximation Theorems of Mathematical Statistics*. That book bridged the gap for me. In addition, there were the new challenges I was facing as I left grad school. When I started working full time, I was dealing with real data and I found that the more statistics I had, the more readily I could do my job. This time around, when I took some statistics courses, I found them very illuminating. With a little intellectual maturity under my belt, I had a much better appreciation for statistics.

#### You have worked in many areas of statistics, including quantitative cybersecurity and software development. How do the challenges of working in a marketing department compare?

Actually, marketing is a bit more straightforward. In the previous positions I had, there were no databases where I could go and get data for my analysis. Previously, I had to construct models, and from these simulations, I would get data to analyze. So, in a sense, marketing is actually quite a bit easier because it's all post analysis, or almost all post analysis. Marketing, by its nature, generates a huge amount of data, which is great for a statistician.

#### Let's talk about that data. When you're working in web analytics, you're often served a huge pile of data about sales, traffic, and user behavior. How do you go about making sense of that data?

It's no different than any other project. There are a number of signals. There are a number of processes, and you're trying to find the relation between them. Again, coming from a probabilist background, I see all regression models as various ways of approximating conditional expectations, and I see conditional expectations as the alpha and omega of all estimation. So basically I don't see numerous problems; I see one problem with many facets.

#### Part of the challenge of being a statistician is translating your theoretical and practical understanding of a problem to a "layperson," who may not have a background in mathematics. How do you approach this problem?

I understand things by example, so I communicate things by example. I keep in mind something Albert Einstein said—"When you start solving a problem, try to keep the problem as simple as possible, but no simpler"—which means you want to identify the primary salient features and explain them. To do that, use examples. Other than that, I don't know how to explain it.

#### I know you a bit, Hossain, so I'm going to guess your ability to communicate well with your coworkers may have something to do with the fact that you bring chocolate to the office. Is there a correlation?

Yes, I do that, too. But I'll tell you this. I was preparing for my PhD exam, and you're supposed to write a document that's more or less the precursor to your thesis. The first version I wrote, my supervisor did me the great service of throwing it right back in my face. Even though I was communicating something very technical to a highly technical audience, I had botched it. That was a lesson in humility. That told me something about communicating. I had no choice but to learn how to communicate my points clearly.

#### What advice do you have for students wanting to pursue a career in statistics?



Max Schleicher is a graduate of Rice University. He works in digital marketing for Insureon, where he facilitates affiliate marketing partnerships, improves SEO performance, and occasionally participates in office bake-offs.

I can tell them this: Don't dismiss the theoretical background. Not just for statistics and marketing, but for any applied science. The biggest mistake a student can make is to dismiss the theoretical part of their curriculum. Don't treat it as an unpleasantness that you have to get over with. The theoretical part is what will last.

My advice would be to strengthen your theoretical background. If you have the time, take as much mathematics as you can, even if it's not in probability and statistics. Study it and internalize it.

### Specifically, what classes do you recommend for them?

Linear algebra. Numerical methods. Of course, probability theory, my favorite. And calculus. Then, if you can find a good course on mathematical statistics, take it. Not just the first and second courses of statistics, but the foundational stuff.

#### What is the difference between mathematical statistics and the first couple of statistics classes a student might take?

Mathematical statistics emphasizes the foundations. For instance, why is it that the maximum likelihood estimation works at all? You can write the likelihood and differentiate and set the score function to zero and calculate, etc., but why is it that this works? Why is it that the central limit theorem works at all?

It's seldom that you can go to one of your textbooks and find a formula that's directly applicable. You have to manipulate it. If you don't have the theoretical background, that step becomes very difficult for you. ■

# JSM 2016: The Extraordinary POVEL of Statistics

Jeffrey S. Morris, JSM 2016 Program Chair

The Joint Statistical Meetings (JSM) is always a special occasion, giving opportunities for so many within the broad scope of our profession to come together and share scientific ideas, network, and catch up with old friends. This year's meeting took place in Chicago, Illinois, a beautiful location with lots to see and do. Our incredible venues included the enormous McCormick Place and beautiful, historical Hilton Chicago, with its ornate ballrooms for special lectures and social events.

The meeting was a success! We set an all-time record with more than 7,200 attendees, far above the previous record of 6,851 set last year. The theme was "The Extraordinary Power of Statistics," which emphasizes that our discipline has extraordinary power to extract relevant information and inform decisions based on collected data and its further development has the potential to greatly affect all aspects of our society, including government, education, health care, marketing, business, finance, and even entertainment.

Members of the program committee worked hard to assemble an outstanding program, consisting of 709 sessions covering a breadth of topics from all areas of statistics and society. We had record participation, with 3,724 total abstracts, numbers made possible by the growing number of posters (636 posters) and speed sessions (274 presenters).

Because of room limitations, JSM is always limited in the number of oral presentations that can be accommodated, and the expansion of the speed sessions since they were introduced in 2013



Photo by Meg Ruyle/ASA Graphic Designer and Production Coordinator

has enabled more participants to contribute to the meeting. We increased the number of speed session presentations by 50% this year, and given the positive feedback we have received, hope this creative and effective medium will continue to grow.

This year's introductory overview lectures were given to packed rooms and introduced important and emerging fields of statistics, including spatiotemporal statistics by Chris Wikle, causal inference by Judea Pearl, adaptive clinical trial designs by Scott Berry, and data science by Philip Yu and Michael Jordan.

The invited poster session "The Extraordinary Power of Data," organized by poster chair Genevera Allen during the opening mixer, presented a diverse set of innovative and thought-provoking work by researchers in academia and industry.

We had two interesting late-breaking sessions, one on evidence-based policymaking and another on data journalism and statistical expertise. They both addressed how our statistical principles can have a greater societal impact and improve best practices in these two important fields.

Each year, we have a number of memorial sessions to pay tribute to members of our community who have passed away in the previous year. This year's

#### **MORE ONLINE**

Plenary session webcasts are available at www.amstat. org/meetings/ jsm/2016/ webcasts/index. cfm.



Jaime O'Connell, center, socializes during the Opening Mixer.

memorial sessions commemorated Bruce Lindsay, Janet Norwood, Ramanathan Gnanadesikan, and Peter Hall. These sessions included scientific presentations and personal memoirs celebrating their lives; showcasing the work they have done; and highlighting the impact they have had on the profession, the broader society, and others.

We had a number of named lectures, including Medallion lectures by Nanny Wermuth and Gerda Claeskens, the ASA Deming Lecture by Vincent P. Barabba, the COPSS Fisher Lecture by Alice Whittemore, and the ASA President's Address by Jessica Utts. Joe Palca from NPR gave the ASA President's Invited Address, "Science and News: A Marriage of Convenience," and discussed how the incremental nature of science and desire of media to seemingly hype every new result as a breakthrough leads to problems. He proposed an alternative model for presenting science in the news media.

It was truly a joy for me to serve as the program chair for these meetings, as their planning was a great team effort with so many contributors. I thank the program committee members, who worked as a team and were diligent and thoughtful in their work to put together the best possible program that reflected the excellence and



Above:

Attendees

snap a selfie

during the

JSM Dance

Left: ASA

President

gives the

Address.

President's

Jessica Utts

Party.

Photo by Eric Sampson/ASA Journals Manager



Photo by Rob Santos

diversity of our field. I also thank the ASA meetings staff-including Naomi Friedman, Kathleen Wert, Christina Link, and Amanda Conageskiwho are a pleasure to work with and do a great job of keeping us all on task. I thank Xuming He and the rest of the ASA Committee on Meetings members for their ideas and support of new ideas to improve the meetings each year. I also thank the previous program chairs-including Annie Qu, Jean Opsomer, Bhramar Mukherjee, and Stephen MacEachern-for their support and help. Special thanks to my two associate program chairs, Veera Baladandayuthapani and Scott Holan, and poster chair, Genevera Allen, for helping me in so many ways and providing valuable alternative perspectives to the decision making.

Finally, thank you to all of you in the broader statistical community. Your participation, whether organizing sessions or giving presentations, really made JSM a success. I strongly encourage you all to stay active and participate by organizing sessions for next year!

We are adapting the 2017 invited session proposal procedure so you can choose three potential sponsors for your session. We hope this will provide more exposure for each proposed session and contribute to making the program as strong as possible!

#### **Y** HASHTAG

HIGHLIGHTS Ben Ackerman @backerman150 Hellooooo Chicago! Excited for a week of many rsts! #JSM2016 #rstJSM #rstChicago #rstdeepdishpizza

#### Michael Lopez @StatsbyLopez

Highly recommend the Data Art show at #JSM2016. Great addition, right next to registration

#### Alex Kaizer @AlexBiostats

Time to experience a whirlwind tour of the wonderful world of SPEED Bayesian analysis. #JSM2016

Ian Dryden @ian\_dryden Outstanding organization at #JSM2016 thanks for a great conference! These halls will be quiet this pm. @AmstatNews

#### Laura Lee Johnson @johnsonll

In session on evidence driven policy. Realize all women organizer/ chair/speakers, all best in elds. Not uncommon at #JSM2016

#### Joyce Robbins @jtrnyc

Mid-talk rounds of applause for @xieyihui using voice recognition to adjust a scatterplot: "blue" "bigger" "title". Wow. #JSM2016



Czajka



Little



Rosenberger



Stokes

For those who were unable to attend or missed some of the activities, here are a few photos and highlights:

#### **ASA Founders**

A special feature of the Joint Statistical Meetings is the ASA President's Address and Founders and Fellows Recognition, during which the Founders Award winners are announced and new ASA Fellows are inducted. Congratulations to all.

"The ASA is extremely pleased to present our highest honor to John, Rod, Jim, and Maura," said ASA President Jessica Utts. "They have worked selflessly to advance the field of statistics and demonstrated impressively high standards that have helped strengthen the experiences of colleagues throughout the association's membership. Citations for each 2016 Founders Award honoree follow:

John L. Czajka is recognized for outstanding leadership and contributions in small area estimation, policy analysis, and the evaluation of estimates obtained from survey data; for long-term active involvement in ASA chapters, sections, and committees, including serving as president of the Washington Statistical Society, serving twice as chair of the Government Statistics Section, as chair of the Survey Research Methods Section, and as chair of the Council of Sections Governing Board, as well as serving on a wide variety of committees, including the Nominations, JSM Program, and Sirken Award committees; and for exceptional service and leadership in a wide variety of professional and government-related scientific activities.

**Roderick Little** is recognized for exemplary leadership in the discipline and its interfaces with government statistics; for representing the discipline on numerous National Research Council and other influential committees; for sustained efforts to improve the quality and analysis of U.S. federal statistics, especially in the decennial census, for example, by addressing the undercount; for significant editorial work, including service as the editor of the Journal of the American Statistical Association and the Journal of Survey Statistics and Methodology, numerous guest and associate editorships, and as the publications representative on the ASA Board of Directors; and for service to multiple ASA sections and committees.

James L. Rosenberger is recognized for career-long support of and involvement in the ASA; for leadership of the *JCGS* Management Committee; for extensive participation in the Statistical Computing Section; for leadership through task forces to improve ASA publications and enhance connections with the NSF; for many contributions serving on the Statistical Partnerships Among Academe, Industry, and Government Committee, the Caucus of Academic Representatives, and the Scientific and Public Affairs Advisory Committee; and for his wise counsel and guidance to the ASA Board while serving as vice president.

Maura E. Stokes is recognized for sustained, thoughtful contributions to the expansion of professional development opportunities for practicing statisticians; for outstanding leadership in the development of the Conference on Statistical Practice, which extends the reach of ASA to nonstatisticians as well as statisticians; for commitment to enhancing the relevance of ASA to applied statisticians as evidenced by her leadership in the creation of ASA's professional development guidelines; for insightful teaching of LearnSTAT and JSM short courses; and for continued mentoring at the local and national levels.

#### **ASA Fellows**

Each year, ASA Fellows are nominated by the membership and selected by the ASA Committee on Fellows. This year's Fellows come from academia, government, business and research organizations spanning 22 states, the District of Columbia and Puerto Rico, as well as Canada, Switzerland and Taiwan.

#### **Award Winners**

Many more people were honored for their contributions to various causes that advance the field of statistics. Following is a list of some of the awards and recipients:

#### Samuel S. Wilks Memorial Award

The Wilks Memorial Award honors the memory and distinguished career of Sam Wilks by recognizing outstanding contributions to statisticians who carry on the spirit of his work. The 2016 honoree is **David Donoho** of Stanford University. Donoho is recognized for his contributions to statistics, mathematics, signal processing, information theory, and reproducible research, including his innovations in statistical theory, multiscale analysis, and compressed sensing, which have had wide influence across science and engineering

#### Gottfried E. Noether Awards

The Noether awards were named after the late Gottfried Emanuel Noether, professor at the University of Connecticut, as a tribute to his



Photo by Eric Sampson/ASA Journals Manager The 65 new ASA Fellows hail from 22 states; the District of Columbia; and Puerto Rico, Canada, Switzerland, and Taiwan.

Alexander Aue	William
Peter Austin	Haitao (
Veerabhadran	Christop
Baladandayuthapani	Peter F.
Anirban Basu	Jeffrey [
Paul C. Beatty	Wayne
Scarlett L. Bellamy	Ruth Et
Christopher R. Bilder	Robert
Jonaki Bose	Madhur
Karl W. Broman	Daniel L
Peter Bühlmann	Jan Han
Wenyaw Chan	Murali F
Cathy Woan-Shu Chen	Rachel I
Cong Chen	David H
Ding-Geng Chen	Hsin-Ch
Joshua (Yonghua) Chen	Viiian H
Francesca Chiaromonte	
	Terry Hy

F. Christensen Chu pher S. Coffey Craigmile D. Dawson Stuart DeSarbo zioni Gentleman mita Ghosh Dastidar L. Gillen nnig Haran M. Harter laziza ieng Huang luang yslop

Tim Jacobbe Barry W. Johnson Galin Jones Barry P. Katz Elizabeth J. Kelly **Ruth Ann Killion** Liza Levina Martin A. Lindquist Qi Long Theodore C. Lystig Charles F. Manski Joel Edmund Michalek Renee Miller Hon Keung Tony Ng Hernando Ombao Van L. Parsons

Limin Peng Gene Pennello Luis Raul Pericchi Guerra Karen Lynn Price Naomi B. Robbins Ingo Ruczinski V. A. Samaranayake Juned Siddique Michael D. Sinclair John Staudenmayer Rochelle E. Tractenberg Yuanjia Wang H. Amy Xia, Amgen, Inc. Xiaonan Xue Ann Graham Zauber Chunming Zhang

memory. The Senior Scholar Award recognizes a distinguished researcher or teacher who supports research in nonparametric statistics. The Young Researcher Award is presented to an accomplished young researcher to promote research and teaching in nonparametric statistics.

- The 2016 Senior Scholar Award honoree is Jane-Ling Wang of the University of California, Davis, who was recognized for her outstanding contributions to the theory, applications, and teaching of nonparametric statistics.
- The 2016 Young Researcher Award honoree is **Han Liu**, assistant professor of operations research and financial engineering at Princeton University. Liu was honored for his outstanding early-career contributions to nonparametric statistics.

#### Outstanding Statistical Application Award

Each year, the ASA recognizes the author(s) of a paper that is an outstanding application of statistics in the physical, biological, or medical sciences. The 2016 honorees are Edoardo M. Airoldi and Jonathan M. Bischof of Harvard University. They were recognized for their novel development of a scalable topic modeling framework to summarize a massive corpus of D documents in terms of K latent topics (mixture components) using, as one example, The New York Times corpus of more than 1.8 million documents with more than 2 billion word counts. Their paper, titled "A Regularization Scheme on Word Occurrence Rates That Improves Estimation and Interpretation of Topical Content," was published in the Journal of the American Statistical Association in 2015.

#### **READ MORE**

For more #JSM2016 tweets, check out Page 48 and https:// storify.com/ AmstatNews/ jsm2016. The 2016 ASA Mentoring Award honorees are Fritz J. Scheuren, left, of NORC at the University of Chicago and Douglas A. Zahn of Florida State University.



Photo courtesy of Eric Vance

### *W.J. Dixon Award for Excellence in Statistical Consulting*

Established through a gift from the family of Wilfrid J. Dixon, this award recognizes outstanding contributions to the practice of statistical consulting. The 2016 honoree is **George A. Milliken** of Kansas State University. Milliken was recognized for exceptional contributions in the areas of linear and nonlinear models, design of experiments, mixed and multilevel models, data analysis, statistical genetics, and biostatistics and for the publication of more than 200 peerreviewed conference papers and technical reports and five widely respected and well-known books.

#### Jackie Dietz Best Journal of Statistics Education Paper Award

This award, established in 2011, is given annually to the best paper in the *Journal of Statistics Education* in the previous year. It is named after the founding editor of the journal. The 2016 honorees are Ellen Gundlach, Chantal Levesque-Bristol, and David Nelson—all of Purdue University—and K. Andrew R. Richards of the University of Alabama for their paper, "A Comparison of Student Attitudes, Statistical Reasoning, Performance, and Perceptions for Web-Augmented Traditional, Fully Online, and Flipped Sections of a Statistical Literacy Class."

#### Waller Awards

The Waller Distinguished Teaching Career and Waller Education awards were established with a contribution from retired ASA Executive Director Ray Waller and his wife, Carolyn. The former recognizes an individual for sustained excellence in teaching and statistics education, and the latter honors an individual for innovation in the instruction of elementary statistics.

- The Waller Distinguished Teaching Career Award honoree is **Allan J. Rossman** of Cal Poly-San Luis Obispo.
- The Waller Education Award honoree is Mine Cetinkaya-Rundel of Duke University.

#### *Karl E. Peace Award for Outstanding Statistical Contributions for the Betterment of Society*

The Karl E. Peace award is bestowed upon a distinguished individual who has made substantial contributions to the statistical profession that have led to direct ways to improve the human condition. The 2016 honorees are **Gary M**. **Shapiro** of Statistics without Borders (SWB) and **Ronald Brookmeyer** of the University of California, Los Angeles.

#### Wray Jackson Smith Scholarship

The ASA's Government Statistics Section and Social Statistics Section present this scholarship annually in memory of Wray Jackson Smith, a founding member of the Government Statistics Section and longtime contributor to federal statistics. It rewards promising young statisticians for their diligence and encourages them to consider a future in government statistics. This year's scholarship honoree is **Maria Cuellar** of Carnegie Mellon University.

### Statistics in Physical Engineering Sciences Award

Established in 1990, this award recognizes outstanding collaborative endeavors between statisticians and scientists throughout the physical and engineering sciences. The honoree is **Dennis K.J. Lin** of Penn State University, who was recognized for his joint work on "Mixture Design and Analysis of Computer Experiments for Refinery Reactor Optimization" with the Industrial Statistics Group in Sasol Group Technology.

### Harry V. Roberts Statistical Advocate of the Year Award

In 2002, the Chicago Chapter established this award in honor of Harry V. Roberts, an exemplar of statistical advocacy. The award recognizes the accomplishments and contributions of those who have successfully advocated appropriate and effective uses of statistics and data-analytic approaches in business and the public sector. The 2016 honoree is **Davina P. Durgana** of the School for International Training Graduate Institute. Durgana was recognized for her work in creating and promoting the Human Vulnerability Diagnostic Tool (HVDT) and bringing the concept and practice of Big Data analytics to the fields of human rights advocacy and social justice.

#### MORE ONLINE Didn't make it

to Chicago? See the JSM2016 slideshow at www.amstat. org/meetings/ jsm/2016/ index.cfm.

#### Edward C. Bryant Scholarship

Established by Westat to honor its co-founder, this scholarship is awarded to outstanding graduate students in survey statistics to help support their graduate education. The 2016 scholarship recipient is Judith N. Law of the University of Maryland.

#### Sirken Award in Interdisciplinary Survey Methods Research

Monroe G. Sirken created an endowment to recognize a distinguished researcher for contributions to interdisciplinary survey research that improve the theory and methods of collecting, verifying, processing, presenting, or analyzing survey data. The 2016 honoree is **Eleanor Singer** of the University of Michigan. Singer was recognized for significant contributions to the understanding of survey participation, sources of nonresponse bias, and factors affecting survey responses.

#### Mentoring Award

The ASA Mentoring Award is given each year to members who have demonstrated extraordinary commitment to providing significant earlycareer support to statistics students, statisticians, or statistical researchers. The award honors those recognized by their colleagues for their sustained efforts to champion the work and develop the careers of statisticians. The 2016 ASA Mentoring Award honorees are Fritz J. Scheuren of NORC at the University of Chicago-who was recognized for his career-long superior mentoring, tireless encouragement, generosity of time and knowledge, and positive influence on generations of statisticians and nonstatisticians alike-and Douglas A. Zahn of Florida State Universitywho was recognized for his 40+ years of exceptional commitment to and passion for mentoring statisticians in teaching, consulting, and collaboration; engaging students to recognize the extraordinary power of statistics in their own lives; and helping countless clients transform statistics from a stumbling block to a stepping stone for social good.

Be sure to check the section and chapter announcements for additional award honorees. Also, visit the ASA's list of awards and scholarships at *www.amstat.org/ASA/Your-Career/Awardsand-Scholarships.aspx* to nominate a member you would like to see honored for their work at next year's JSM in Baltimore, Maryland. ■

### COMMITTEE OF PRESIDENTS OF STATISTICAL SOCIETIES COPSS Honors Statisticians

Wendy Lou, COPSS Secretary/Treasurer

The Committee of Presidents of Statistical Societies (COPSS) presents awards annually to honor statisticians who have made outstanding contributions to the profession of statistics. For 2016, three awards were presented on August 3 during the Joint Statistical Meetings in Chicago.

Nicolai Meinshausen of ETH Zurich is the honoree of the 2016 Presidents' Award for his fundamental and ingenious contributions to highdimensional inference, variable selection, multiple testing, graphical models, machine learning, and causal inference for heterogeneous data.

Amanda L. Golbeck of the University of Arkansas for Medical Sciences was honored with the 2016 Elizabeth L. Scott Award for her outstanding efforts to enhance the status of women and minorities; foster new leadership opportunities for women and men; promote diversity at all levels, and advocate for a more inclusive, open, and supportive atmosphere in statistical sciences.

Alice S. Whittemore of the Stanford University School of Medicine is the honoree of the 2016 R. A. Fisher Award for her fundamental contributions to biostatistics and epidemiology, covering a wide range of topics from environmental risk assessment to genetic linkage analysis, genetic association studies and cancer epidemiology; for bringing her statistical and mathematical insight to bear on the collection and interpretation of scientific data; for her leadership in large consortia of cancer studies; and for being a role model for many young scientists. The webcast of her Fisher Lecture, "Personalized Disease Prevention: Statistical Challenges," is available at www.amstat.org/meetings/jsm/2016/ webcasts/index.cfm.

Nominations are wanted for the 2017 awards. Information about award criteria and nomination procedures is available at *http://community.amstat.org/copss/home*.



Meinshausen



Golbeck



Whittemore

# My Life as a **Statistical Consultant**: JSM 2016 Invited Panel Discussion

Organized and Chaired by Xiaoyue Maggie Niu, The Pennsylvania State University

t the 2016 Joint Statistical Meetings, three statisticians representing government, business/private sector, and academia presented a panel discussion titled "My Life as a Statistical Consultant," organized and chaired by Xiaoyue (Maggie) Niu. Panelists shared stories and wisdom from their careers and responded to questions about being a statistical consultant in different environments. Here are the highlights.



MARY BATCHER recently retired from Ernst & Young, where she began a statistical practice that started with \$30,000 in revenue in 1997 and was more than \$4.5 million when she retired in 2015. After leaving Ernst & Young, Batcher teamed with two other retired statisticians to start a consulting company, BDS Data Analytics.



JAMES L. ROSENBERGER is professor of statistics at Penn State and director of the Statistical Consulting Center and Outreach and Online Programs. He served as vice president of the ASA from 2013–2015, is a member of the board of directors of the National Institute of Statistical Sciences, and served for two years as a statistics program officer at the National Science Foundation.



NATHANIEL SCHENKER is associate director for research and methodology at the National Center for Health Statistics (NCHS) and an adjunct professor at the University of Maryland. Before starting at NCHS in 1999, he was a faculty member at the University of California, Los Angeles, Department of Biostatistics, and, before that, a mathematical statistician at the U.S. Census Bureau. He was president of the ASA in 2014

#### **MORE ONLINE**

Read the complete interview at *http://magazine.amstat.org.* 

#### Q: What are the features that most distinguish your environment from the other two? What kind of person/personality do you think would enjoy your work?

Jim: Effective collaboration requires someone who is sufficiently curious to learn the other person's jargon and discipline. Academia provides an invigorating environment with a steady stream of new students to mentor and new potential collaborators to work with.

**Nat:** One of the two most distinguishing features is that, although statisticians at NCHS consult and collaborate often with people from other organizations, our main responsibility is to work with other "in-house" staff. A second feature is that we typically don't need to write proposals to obtain funding for our work.

A person who enjoys public service, who is curious and interested in both methodological work and subject-matter problems, who likes to work with others, and who is patient and friendly would enjoy my work. Additional important characteristics would include a solid training in statistics, good communication skills, and character and integrity.

Mary: I think a person with the requisite statistical skills who likes working with people and enjoys variety in the work and the challenge of solving new problems would enjoy my work.

#### Q: What is the most difficult thing you have to do on a routine basis? When have you felt like crying (and/or laughing) at work?

Mary: The most difficult and frustrating experience at work for me both in government and at Ernst & Young was doing annual performance evaluations, with the imposition of quotas on the different rating levels. This sometimes meant I had to give a person a lower rating than they deserved.

Nat: Like Mary, I'd also say conducting annual performance evaluations. I find it hard to use numerical scores to evaluate the work of my staff members, and I find that most employees (including me) like to think of themselves as above average, which is, of course, a logical impossibility. Moreover, it is difficult for a supervisor to give, and a supervisee to receive, constructive criticism, although that is important and useful. I much prefer regularly working with staff on improving their performance without having to evaluate them.

Jim: Mentoring students who haven't grasped the importance of

treating each client with respect. I have had to suppress dismay and anger when observing a student's response to a consulting client, who had not taken the client's goals seriously and simply produced a superficial recommendation to close out the case.

#### Q: How have the organizations you have belonged to expressed their appreciation for your contributions?

**Mary:** I received cash awards and annual bonuses, as well as verbal recognition, all of which I greatly appreciated. At Ernst & Young, I also had a pot of money I could use to make cash awards throughout the year to deserving employees for special efforts.

Nat: NCHS has expressed its appreciation in several ways. These include favorable performance evaluations, raises, and bonuses. NCHS also has an extensive award program, and I've been very happy to receive, for example, awards for science and leadership. I believe my recruitment to direct the Division of Research and Methodology over six years ago, which represented a new opportunity and learning experience, was an expression of appreciation (unless the agency thought my statistical work wasn't very good and therefore wanted to move me into management :) ). Finally, a very meaningful expression of appreciation, which would apply in any organization, is the occurrence of requests from other staff for collaborations!

Jim: Early in my academic career, I was told by colleagues I should focus more on singleauthor publications. Instead, I enjoyed the collaborative work with researchers in other disciplines and made it my focus.

#### James L. Rosenberger (Jim)

This panel provided a great opportunity to think about my meandering path from a math major in college to an academic applied statistician with 40 plus years of experience. It has been a very rewarding journey, having collaborated with many interesting researchers on challenging projects.

#### Mary Batcher (Mary)

My experience includes 11 years of internal consulting in the government, 17 years of business consulting, and one year of independent consulting. My government experience was at the IRS in Statistics of Income, where we provided statistical support for new initiatives and quality audits. At Ernst & Young, we worked through our tax and audit colleagues to serve their corporate clients, providing primarily sampling services. Now as an independent consultant, I do not have a readily available network to rely on to connect me to clients.

#### Nathaniel Schenker (Nat)

As the "government representative" on the panel, I'll focus my comments on the most recent 17 years of my career, which I've spent as an "in-house" researcher and consultant at the National Center for Health Statistics. Since many readers may not be familiar with government statistical work, I'll describe NCHS and the work done there.

Despite this choice, I was granted tenure and promotion, though perhaps at a slower pace. In more recent years, collaborative research has become widely recognized and indeed essential for pursuing big science challenges.

#### Q: Do you see yourself more as a statistical consultant or collaborator? What do you feel is the difference?

**Nat:** I see myself and my staff more as collaborators than consultants. I think of consulting more as short-term assistance with solving a specific problem and collaboration more as long-term teamwork on a project from beginning to end. I think statisticians can do a better job, even on specific problems, if they are concerned with the entire project and feel they are part of the team. I also prefer for project leaders to think of statisticians as team members, rather than simply "helpers." Of course, as internal staff members at NCHS, all employees are part of a team that collaborates to monitor the nation's health.

Mary: I think I am both. To me, a collaborator is someone who understands the business and advises more broadly on

#### EDITOR'S NOTE:

Nathaniel Schenker's findings and opinions are his own and do not necessarily reflect the views of the National Center for Health Statistics, the Centers for Disease Control and Prevention, or the U.S. government. general problems. Sometimes, there is a narrowly defined statistical task and little opportunity to collaborate. The collaboration occasions are very rewarding and can lead to a longer-term relationship with the client.

Jim: I have worked in both roles. Mostly when engaged in shorter-term interactions that do not lead to publications, I consider myself in a consulting role. However, when collaborating with someone longer term with a challenging and worthwhile problem, the work is more satisfying and leads to a mutually beneficial relationship.

#### Q: How can academia better prepare students to become effective statistical collaborators?

Jim: I prefer to have the industry/government panel members answer this question. However, I feel we can do better than we have in the past by utilizing more of the tools of feedback. We have students view video of themselves after their interactions with clients, and we use peer observers during the consultant/client meetings. Then, we follow up by evaluating the students' reports and recommendations.

**Nat:** Three important areas of preparation would be experience in using statistics to solve nonstandard, applied problems; experience at working in teams; and communication skills.

#### Q: What have you learned from your statistical collaboration experience that you apply outside the field of statistics (outside of your job)?

Jim: I think the direction is mostly reversed. My broad interests in science and engineering (how things work) have made me a much better consultant and collaborator. I encourage statisticians to take courses, read, and explore interests in areas beyond statistics.

**Mary:** For me, it goes the other way. A lifetime of different experiences has taught me patience, listening skills, and problem solving ability that make me a better statistical collaborator.

**Nat:** I'll also turn the question around and answer the following question: "What courses outside of statistics especially helped you as a statistical collaborator?" My answer would be the two literature courses I took as a freshman in college. They helped me learn how to write clearly and logically, which has been an important success factor in my career.

#### Q: What aspects of your job do you regularly trust to your colleagues/assistants?

Jim: Whenever possible, I try to have my assistants and students tackle a problem first and use me as a sounding board, or mentor, to discuss the approach and either confirm it or point in another direction.

Mary: As a manager, I trust the process we put in place for following established procedures and reviewing work. An initial discussion of the project approach and a final review, with agreement that I would be consulted on arising issues, were sufficient involvement for me with an experienced and talented group.

#### Q: Discuss your work/life balance and how you maintain it.

**Nat:** My family is very important to me, and I've always tried to follow the principle of "family first." That can have different

meanings, however. For example, as the sole wage earner in my immediate family, I've had to work diligently enough to keep and advance in my job so I can support my family. That occasionally has involved working late or on weekends. Primarily, though, "family first" has meant to me that I should be sure to have time to spend with my family. I've found several ways to accomplish that. One is to learn to say "no," that is, not to take on so much work, even if it is attractive and interesting, that it forces me to spend most of my time away from the family. Another is to choose jobs with flexibility in scheduling and/or an appreciation of the importance of family. I've found both my academic and government jobs to satisfy those criteria.

Also helpful is to choose job locations close to the extended family. For example, when we left the West Coast, where my wife's parents live, we moved to the East Coast, where many of her extended family members live and my parents lived.

Finally, it has sometimes been necessary to work during "abnormal hours" to spend "normal hours" with my family. For example, I needed to serve as ASA president outside of my government job, so I often made use of saved-up vacation time or late-night hours to carry out my ASA duties.

Jim: Early in my career, I found myself working too much at home late at night. Preparing lectures, grading papers, etc. can easily spill into home life. I now try to put my academic work into focused time during the day, but confess to failing far too often.

#### MORE ONLINE Read the complete interview at http://magazine. amstat.org.

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#### Questions from the Audience

# Q: If I want to be a statistical consultant, shall I get a master's or PhD?

**Nat:** I think a master's degree can prepare you very well for statistical consulting. If you also want your job to involve theoretical and methodological research, as is often the case, for example, in my division at NCHS, then the research experience inherent in earning a PhD is helpful. Having a PhD can also be helpful, although not required, if you want to supervise other people who have PhDs.

**Mary:** You can be successful with either, but some situations require a PhD.

Jim: I think you should seek experiences as early in your career as possible, through internships and working on projects, which provides insight into what kind of work gives you the most joy. If your peers and mentors encourage you to seek a higher degree, listen to them, since they may see more potential in your abilities than you are aware of.

### Q: How did you make the decision about career changes?

**Nat:** I've made two major career changes, and the second was far more complicated than the first. When I was at the Census Bureau immediately after earning my PhD, I knew I would eventually like to try my hand at an academic job. I heard it would difficult (though not impossible) to get a first job in academia if I waited too long after graduate school, so I decided to leave the Census Bureau after working there for three years. I applied for a wide variety of faculty jobs advertised in *Amstat News*, visited every institution that invited me for an interview, and chose the one (UCLA) that felt like the best fit. Life was simple!

My decision to leave UCLA and move to NCHS involved many more considerations. Life wasn't as simple! I had been at UCLA for 11 years, had tenure in the department of biostatistics, and was well settled there. I had married a woman from Los Angeles whose parents lived there and I had a three-year-old son. Why would I leave such a secure situation in beautiful. sunny California? Well, my wife and I felt we could use a change in location, my son was young enough that a move wouldn't be too hard on him, and, as mentioned above (in answering the question on work/life balance), a move to the East Coast would place us close to other family members. I also missed aspects of working for the government such as those discussed in my introductory remarks, and there were three attractive senior-level job openings in the DC area. I applied and interviewed for all of them and chose the one (NCHS) that felt like the best fit.

Mary: It was easy for me, as the fun and challenge had gone out of my work at the IRS Statistics of Income, so it was the right time to make a change. I retired from Ernst & Young to do independent consulting when it felt right to do so. ■

## 2016 Educational Ambassador from Nigeria Attends JSM

dedayo Adepoju of the department of statistics at the University of Ibadan attended the Joint Statistical Meetings in Chicago, Illinois, as the 2016 Educational Ambassador to participate in continuing education (CE) courses.

The Educational Ambassador Program is an ASA outreach effort launched by the Committee on International Relations in Statistics to foster international collaboration and enhance statistics education worldwide. The program subsidizes an ambassador from a developing country to attend JSM and take CE courses. It also provides a one-year ASA membership.

#### ADEPOJU PARTICIPATED IN THE FOLLOWING JSM COURSES:

- Introduction to Bayesian Methods, Computation, and Modeling
- Bootstrap Methods and Permutation
  Tests for Doing and Teaching Statistics
- Modeling Ordinal Categorical Responses, with Examples Using R
- Improve Your Regression with Modern Regression Analysis Techniques: Linear, Logistic, Nonlinear, Regularized, GPS, LARS, LASSO, Elastic Net, MARS, TreeNet Gradient Boosting, Random Forests

Candidates are required to have a PhD in statistics and an interest in teaching, as well as to be open to study in new areas of research. After attending

#### **Faculty Positions Available**

### ALM STATISTICS

The Department of Statistics at Texas A&M University anticipates multiple open-rank faculty positions (tenure/tenure-track) to begin September 2016. Salary is open depending upon qualifications presented. Completion of all requirements for a PhD/DSc degree in Statistics (or a closely related field) prior to beginning employment is required. The department encourages persons from all areas of research to apply, but is particularly interested in areas at the interface of statistics and computer science (i.e., big data, computational statistics and data mining) and in spatial statistics. Successful candidates will have a strong commitment to research and teaching. Excellent computing facilities are available and highly competitive startup funding is anticipated.

The department has a tradition of outstanding theoretical and interdisciplinary research. Current faculty members actively collaborate with colleagues in the Colleges of Science, Agriculture and Life Sciences, Engineering, Geosciences, Medicine, Public Health, Veterinary Medicine, and with the Faculties of Genetics, Nutrition and Toxicology. For more information on the department and the research interests of its faculty, please visit <u>www.</u> <u>stat.tamu.edu</u>. **To apply, please visit** <u>AcademicJobsOnline.org</u>. Applications will continue to be accepted until the positions are filled.

Texas A&M University is an equal opportunity/affirmative action employer. The university is dedicated to the goal of building a culturally diverse and pluralistic faculty and staff committed to teaching and working in a multicultural environment and strongly encourages applications from women, minorities, individuals with disabilities and veterans. Texas A&M University has a partner placement program and is responsive to the particular needs of dual career couples. The Department of Statistics is interested in candidates who can contribute to the diversity of the academic community through their research, teaching and/or service. CE courses in an emerging area of research, the educational ambassador returns to his or her country and teaches the subject matter learned in the CE course(s) within the next year to at least 10 students.

"My nomination as educational ambassador gave me the unique privilege of attending the 2016 Joint Statistical Meeting (JSM) in Chicago for the first time," said Adepoju. "The JSM-being the largest gathering of statisticians in the world with more than 6,000 attendees from different countries and close to a thousand sessionsafforded me the opportunity of interacting with researchers, colleagues, practitioners, and professors from my area and other different areas of specializations in statistics," she continued. "There was a unique opportunity of exchange of ideas and possibility of further collaborations with researchers from other countries. My fervent desire is to transfer the skills and knowledge acquired during the training to colleagues and students in the department."

She plans to teach content from Bootstrap Methods and Permutation Tests for Doing and Teaching Statistics at the postgraduate level for the next two semesters. "I strongly believe that the knowledge gained will help the students in no small measure, especially when they start writing their research projects," said Adepoju.

Since the program launch in 2005, the committee has chosen educational ambassadors from Argentina, Ethiopia, Vietnam, Morocco, Armenia, Costa Rica, Botswana, Colombia, Bangladesh, and Nigeria. ■



Photo by Rebecca Nichols/ASA Director of Education

BAPS Chair Roxy Peck welcomes participants and introduces presenter Robin Lock.

**REACH OUT** 

# 27 Teachers Attend **Beyond AP Statistics** (BAPS) Workshop at JSM

Rebecca Nichols, ASA Director of Education, and Roxy Peck, BAPS Program Chair

The American Statistical Association/National Council of Teachers of Mathematics Joint Committee on Curriculum in Statistics and Probability sponsored a Beyond AP Statistics (BAPS) workshop at the annual Joint Statistical Meetings in Chicago on August 3. The BAPS workshop (*www.amstat.org/asa/education/BAPS/home. aspx*) is offered for experienced AP Statistics teachers and consists of enrichment material just beyond the basic AP curriculum.

This year, 27 teachers from Illinois and other parts of the country came to Chicago for a full-day workshop designed to strengthen and expand teachers' statistics backgrounds. The brainchild of former ASA/ NCTM Joint Committee chair Jim Matis, BAPS has been offered at JSM for more than a decade.

This year's BAPS workshop, organized by Roxy Peck of Cal Poly, was divided into four sessions led by the following statisticians:

- Robin Lock, St. Lawrence University Introduction to Time Series Analysis
- Dick DeVeaux, Williams College Multivariate Thinking
- Jim Cochran, University of Alabama Teaching with Case Studies
- Beth Chance, Cal Poly Classification and Regression Trees

Chicago Chapter members also welcomed the BAPS attendees and joined in the breakfast or lunch. New this year, BAPS attendees participated in a lunch presentation and discussion due to an ASA member initiative led by Mark Ward of Purdue and Donna



LaLonde of the ASA to bring together teachers and statistics educators to watch the Navajo Math

Circles documentary and discuss creating stats circles.

Participants were given a pass to attend the exhibit hall at the Joint Statistical Meetings and a certificate of participation from the ASA certifying professional development hours. Optional 0.5 graduate credit hours was also available through Adams State University.

Course attendees did not need to register for the Joint Statistical Meetings to participate in the BAPS workshop, although there was a discount available for K-12 teachers. Some BAPS participants opted to also attend the high-school sessions of the Meeting Within a Meeting (MWM) Statistics Workshop for Math and Science Teachers (*www.amstat.org/asaleducation/MWM/ home.aspx*) on August 2. ■ **ASA** members are encouraged to connect with **local AP Statistics** teachers and middle- and high-school mathematics and science teachers. **Chapters might** also consider sponsoring teachers to attend the next **BAPS** workshop, planned for JSM 2017 in Baltimore, Maryland. **Questions should** be directed to Rebecca Nichols, ASA director of education, at rebecca@amstat. org or (703) 684-1221, Ext. 1877.

## **Proposals Sought for 2017 USCOTS**

Planning has begun for the next United States Conference on Teaching Statistics (USCOTS), which will be held at the Penn Stater Hotel and Conference Center May 18–20, 2017, and hosted by the Consortium for the Advancement of Undergraduate Statistics Education (CAUSE).

The USCOTS Program Committee is seeking proposals for active, participant-focused breakout sessions and pre-conference workshops addressing the conference theme—Show Me the Data!

The conference theme is intended to encompass many aspects of teaching statistics, including the following:

- Helping students recognize *data beat anecdotes* and are essential for evidence-based decision making
- Emphasizing *data visualization* in statistics courses
- Embracing ideas of *data science* in teaching statistics
- Using data as educators to make *informed decisions* related to effective teaching and learning

### CAUSE Solicits USPROC Projects, Prepares for e-Conference

The ASA and Consortium for the Advancement of Undergraduate Statistics Education (CAUSE) announce the eighth annual Undergraduate Statistics Project Competition (USPROC). The purpose of USPROC is to encourage the development of data analysis skills, enhance presentation skills, and recognize outstanding work by undergraduate statistics students. Learn more at *www.causeweb.org/usproc*.

#### Free e-Conference

The second annual electronic undergraduate statistics research conference will take place October 21. This free e-conference includes a keynote address by Rob Gould of the University of California at Los Angeles, plenary presentations by USPROC 2015–2016 student award winners, virtual poster presentations by undergraduate statistics students, and a professional development panel on careers in statistics. Learn more at *www.causeweb.org/usproc/eusrc*. USCOTS is designed to model good teaching in its sessions, social activities, and hallways. As with previous conferences, this one will consist of plenary sessions, breakout sessions, and "poster and beyond" sessions. These sessions will address how to make connections in four main areas: curriculum, pedagogy, resources, and educational research. In addition, pre-conference workshops will provide an opportunity for more in-depth experiences with particular curricular ideas, pedagogical approaches, technology tools, and educational research methods.

The committee is now requesting proposals for 80-minute breakout sessions that relate directly to the conference theme and focus on actively engaging participants. It is not appropriate for a breakout session to consist primarily of a presentation. The committee is also requesting proposals for pre-conference workshops, which can last for as little as half a day to as long as two days.

To propose a breakout session or pre-conference workshop, send a description of your proposed session to the program chair, Allan Rossman, at *arossman@ calpoly.edu* by November 21. Your proposal of no more than 1,500 words must include the following:

- Title for proposed session
- Names, email addresses, and brief biographical sketches for all leaders of the session
- Indication of whether the proposal is for a breakout session or pre-conference workshop, along with an intended duration for a pre-conference workshop
- Description of how the session relates to the conference theme
- Explanation of how the session will actively engage participants
- Discussion of how participants will be able to implement ideas presented in the session

Proposals will be reviewed by members of the USCOTS Program Committee, and notifications will be made by January 15, 2017. Proposals for "poster and beyond" sessions will be solicited at a later date; those proposals will be due February 1, 2017.

For more information, visit *www.CAUSEweb. org/uscots.* ■

# Call for Nominations: 2017 Deming Lectureship

The Deming Lectureship Committee is accepting nominations for the 2017 Deming Lectureship. This prestigious ASA award was established to honor the contributions of W. Edwards Deming, one of the most influential statisticians in history. The award also enhances the statistical community's awareness of the scope and importance of Deming's contributions and recognizes the accomplishments of the awardee.

To nominate a colleague for the 2017 Deming Lectureship, do the following:

- Complete a nomination form, available at *www.amstat.org/demingaward*
- Supply the candidate's CV
- Provide a cover letter that describes why your candidate deserves the award based on work that continues the tradition of Deming and the names and email addresses of two supporters

Only ASA members may nominate, though supporters need not be members.

The awardee will receive a plaque and honorarium, as well as deliver one of only three plenary lectures at the 2017 Joint Statistical Meetings in Baltimore, Maryland. Additionally, travel expenses to JSM will be reimbursed if requested.

Nominations are due November 15, 2016.

Deming developed and taught methods for quality improvement and quality control in industry using statistical decision theory, as well as methods for statistical sampling and enhancing survey quality. These methods are still used worldwide. In particular, Deming is credited with the following:

- Inspiring the Japanese post-WWII economic miracle, when Japan rose from the aftermath of WWII to become one of the world's largest economies.
- Leading the innovative program to use sampling with the 1940 census to obtain the first "long form" data (now the American Community Survey).
- Conducting quality management seminars attended by more than 100,000 people that emphasized the benefits of having statistical



ASA President Jessica Utts presents a plaque to 2016 lecturer, Vincent Barabba, at JSM in Chicago, Illinois.

# thinking permeate business practices. The resulting impact on managers throughout the global economy continues today.

These practical outcomes resulted from Deming applying his academic scholarship to solving realworld problems. He published hundreds of articles and books on a range of topics, including sampling, professional conduct for statisticians, quality improvement, systems and systems thinking, physics, and human psychology. In the words of the Deming Institute (*www.deming.org*), Deming's unwavering belief in continual improvement "led to a set of transformational theories and teachings that changed the way we think about quality, management, and leadership." ■

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

AWARD	DEADLINE	NOMINATIONS	QUESTIONS
ASA Deming Lectureship	November 15, 2016	Pam Craven pamela@amstat.org	Roger W. Hoerl roger.hoerl@gmail.com
COPSS Fisher Lectureship and Award	December 15, 2016	http://community.amstat.org,	/copss/home
ASA Noether Senior and Young Scholar Awards	December 15, 2016	Pam Craven pamela@amstat.org	Edsel A. Pena pena@stat.sc.edu
Monroe. G. Sirken Award in Interdisciplinary Survey Methods Research	December 15, 2016	Pam Craven pamela@amstat.org	John L. Czajka jczajka@mathematica-mpr.com
COPSS Presidents' Award	January 15, 2017	http://community.amstat.org,	/copss/home
F.N. David Award	January 15, 2017	http://community.amstat.org/	copss/home
Snedecor Award	January 15, 2017	http://community.amstat.org,	/copss/home
Karl E. Peace Award for Outstanding Statistical Contributions for the Betterment of Society	February 1, 2017	Pam Craven pamela@amstat.org	Paul S. Albert albertp@mail.nih.gov
ASA W. J. Dixon Award for Excellence in Statistical Consulting	February 1, 2017	Pam Craven pamela@amstat.org	Pam Craven pamela@amstat.org
<b>Causality in Statistics Education Award</b>	February 15, 2017	educinfo@amstat.org	educinfo@amstat.org
Harry V. Roberts Statistical Advocate of the Year Award	February 15, 2017	Pam Craven pamela@amstat.org	John Vanderploeg vanderp@comcast.net
ASA Samuel S. Wilks Memorial Medal	February 15, 2017	Pam Craven pamela@amstat.org	Sanjib Basu sanjib.ba@gmail.com
ASA Waller Distinguished Teaching Career Award	February 15, 2017	Pam Craven pamela@amstat.org	Bradley A. Hartlaub hartlaub@kenyon.edu
ASA Waller Education Award	February 15, 2017	Pam Craven pamela@amstat.org	Bradley A. Hartlaub hartlaub@kenyon.edu
ASA W. J. Youden Award in Interlaboratory Testing	February 15, 2017	Pam Craven pamela@amstat.org	Blaza Toman blaza.toman@nist.gov
ASA Statistics in Physical and Engineering Sciences Award	February 20, 2017	<b>Ming Li</b> mli@alumni.iastate.edu	<b>Ming Li</b> mli@alumni.iastate.edu
ASA Gertrude M. Cox Scholarship	February 23, 2017	Pam Craven pamela@amstat.org	Eloise E. Kaizar ekaizar@stat.osu.edu
ASA Edward C. Bryant Scholarship	March 1, 2017	Pam Craven pamela@amstat.org	Pushpal Mukhopadhyay pushpal.mukhopadhyay@sas.com
ASA Excellence in Statistical Reporting Award	March 1, 2017	Pam Craven pamela@amstat.org	Alan R. Tupek alan.tupek@gmail.com
ASA Fellows	March 1, 2017	Nominations accepted at <i>www.amstat.org</i> beginning October 1, 2016	Keith F. Rust keithrust@westat.com
ASA Mentoring Award	March 1, 2017	Pam Craven pamela@amstat.org	Jessica M. Utts jutts@uci.edu
ASA Outstanding Statistical Application Award	March 1, 2017	Pam Craven pamela@amstat.org	<b>Jung-Ying Tzeng</b> jytzeng@stat.ncsu.edu
Statistical Partnerships among Academe, Industry, and Government (SPAIG) Award	March 1, 2017	Pam Craven pamela@amstat.org	<b>Pam McGovern</b> or <b>Kelly Zou</b> Pam.McGovern@nass.usda.gov Kelly.Zou@pfizer.com
ASA Founders Award	March 15, 2017	Pam Craven pamela@amstat.org	Jessica M. Utts jutts@uci.edu

**John Hayes** was recently awarded the Presidential Awards for Excellence in Mathematics and Science Teaching.

Hayes has been teaching mathematics at Northland Pines High School for 16 years. He teaches freshmen through seniors in Algebra I, Algebra II, Advanced Placement (AP) Calculus BC, and AP Statistics. He is currently on a leave of absence to gain experience as an academic coach of mathematics.

Hayes uses his experience in biostatistics at Indiana University Hospital to help students understand the relevance of statistics in his AP Statistics courses. This provides a valuable link to students' writing skills as they create a technical paper for a final research project.

He earned a bachelor's in applied mathematics from the University of Wisconsin-Stout and a master's in applied statistics from Purdue University. Hayes is a certified Master Educator Teacher in 6–12 mathematics and a National Board Certified Teacher in adolescent/ young adult mathematics. ■

The Michael H. Kutner Award is given annually to alumni of the Emory University Department of Biostatistics and Bioinformatics for distinguished service to the profession. This year's award recipient was **Raymond P. Bain** from Merck.

Bain earned his PhD from the department of statistics and biometry in the Emory University School of Medicine in 1981. He joined Merck in 1999 and serves as executive director of the Clinical Biostatistics and Research Data Systems (BARDS) organization, which develops and applies statistical methods in the targeting, discovery, development,



From left: Ray Bain, Lance Waller, and Michael Kutner

manufacturing, and marketing of pharmaceuticals, vaccines, and biologics through the design, conduct, analysis, interpretation, and communication of pre-clinical and clinical investigations. Bain oversees BARDS permanent staff that includes more than 250 statisticians and statistical programmers located in the United States, Europe, and Asia Pacific. ■

Oregon State University College of Science Dean **Sastry G**. **Pantula** was honored for his outstanding and extensive service to the statistics profession with the 2016 Paul Minton Service Award from the Southern Regional Council on Statistics (SRCOS) at the 2016 Joint Statistical Meetings (JSM) in Chicago.

The award was established to honor Paul Minton, who served the statistics profession nationally and in the southern region for many years and was instrumental in the continued development of statistical education in the region represented by SRCOS. The award recognizes outstanding service to the statistics profession.

Recipients of this award must reside or have resided in one of the states represented on the Southern Regional Council on Statistics for at least 10 years. Other criteria include contributions to statistical education, statistical service to industry and government agencies, service to professional statistical organizations, and promotion of the use of statistics.

After nearly 30 years on the statistics faculty and serving as head of the department at North Carolina State University, Pantula meets all the criteria. He also served as the director of statistics graduate programs for eight years and was inducted into NCSU's Academy of Outstanding Teachers in 1985. In 2010–2013, he served as director of the National Science Foundation's Division of Mathematical Sciences.

Pantula was surprised by the award when Michael Kutner, Pantula's colleague and mentor and former chair of the department of biostatistics and bioinformatics at Emory University, presented the award at a breakfast held for past and present ASA presidents. Pantula served as ASA president in 2010. He is also an ASA fellow and a fellow of the American Association for the Advancement of Science (AAAS).

SRCOS seeks to promote the improvement of postsecondary education in statistical science, assist in the development of high-quality statistics instruction in elementary and high schools, and promulgate educational activities that improve the quality of statistical practices.

Pantula continues to advocate for excellence, harmony, and diversity for science students and faculty at Oregon State University and beyond. ■

## **Graduate Students Increase Awareness of Statistics as a Career**

Mallorie Fiero

s part of the ASA Biometrics Section iniriative, "Developing the Next Generation of Biostatisticians," graduate students in biostatistics and statistics from the University of Arizona (UA) carried out an outreach project to increase awareness of careers in statistics and promote a college education in statistics among under-represented students in upper-level math classes in southern Arizona high schools.

Based on the ASA's "*This* Is Statistics" program, graduate students gave 35-minute presentations focused on careers in statistics, ideal steps to pursue an education in statistics, and personal experiences involving statistics. At the end of each presentation, surveys were administered to gauge how the presentation influenced students to pursue statistics in the future.

The UA graduate students visited 21 classes during the 2015-2016 academic year, including statistics, AP Statistics, pre-calculus, calculus, and AP Calculus. Of the 455 students present during classroom visits, the majority (287, 63%) were Hispanic or Native American. Before the presentation, most of the under-represented students were not interested in continuing an education in statistics after high school (63%), with 30% undecided and 7% interested. After the presentation, the percentage of Hispanic and American Indian students who were inter-



From left: Biostatistics graduate students Mallorie Fiero and Kevin Doubleday, Sahuaro High School statistics teacher Andrew Christian, and statistics graduate student Grant Schissler

ested in continuing their statistics education increased to 41%, with 43% undecided and 16% not interested.

Below are a few representative open-ended responses to how the presentation changed the students' perception of statistics:

> "It made me realize that there are a lot of job opportunities in statistics and that it is a career path that is highly in demand and it may be worth pursuing."

> "This presentation changed the way I viewed statistics in a very positive way. Before, I thought it was boring and not relevant; however, when you look at it, you actually do a lot more and have fun and make a difference doing it."

> "Like it was explained in the presentation, stats isn't

just gathering and calculating data. It has a big impact on our everyday lives and is around us in places we haven't noticed."

"After this presentation, I am strongly considering a career involving statistics."

Teachers and students were excited to hear about the multitude of opportunities the field of statistics provides. Based on student responses, simply having graduate student statisticians relay the good news about statistics may be enough to kick start some students' journeys down a previously unconsidered career path. At the very least, the presenters effectively conveyed both the diversity of work in which statisticians participate and the path a student needs to start down to pursue a career as a statistician.

# section news

#### Bayesian Statistical Science

The Section on Bayesian Statistical Science (SBSS) was active at the Joint Statistical Meetings in Chicago, Illinois, sponsoring eight invited, 10 topic-contributed, and 14 contributed sessions.

Two of the topic-contributed sessions featured the winners of the SBSS student paper competition: Francois-Xavier Briol (University of Warwick), Trevor Campbell (MIT), Xi Chen (Duke), Chenyang Gu (Brown), David Jones (Harvard), Daniel Kowal (Cornell), Dootika Vats (University of Minnesota-Twin Cities), and Theodore Westling (University of Washington).

Additionally, two students were given special awards. Akihiko Nishimura (Duke) was awarded with the Laplace prize for most outstanding student research paper and Behnaz Pirzamanbein (Lund University) was awarded for outstanding Bayesian research applied to climate science.

Beyond sponsoring sessions, SBSS also sponsored roundtable discussions on Bayesian nonparametric modeling by **Athanasios Kottas** and Bayesian model selection by **Philip Dawid**. Members were also given the opportunity to meet and mingle at the SBSS mixer Tuesday night, where they honored the student paper award winners.

SBSS is already making plans for the JSM 2017 program. While proposals for invited sessions are closed, proposals for topic-contributed sessions will be accepted soon.

For more information about SBSS activities, visit *http:// community.amstat.org/sbss/home.* ■

#### **Government Statistics**

Wendy Martinez, GSS Past Chair

The Government Statistics Section sponsored their second data challenge in 2016. The contest—open to anyone, including college students and professionals from the private or public sectors—was a success and there will be a special issue of *Computational Statistics* dedicated to it.

Participants were challenged to analyze the Department of Transportation's General Estimates System (GES) using any statistical and/or visualization tools and methods. Thirteen contestants participated; the following were chosen as winners:

#### **Professional Category**

Christopher Eshleman and Jonathan Auerbach, Port Authority of New York

#### **Student Category**

*First Place:* **Ryan Jarrett** and **Lucy D'Agostino**, Vanderbilt University

*Second Place:* Aditi Sharma, University of Maryland

*Third Place:* Southern Methodist Statistics Class, Professor Ng

The Government Statistics Section will sponsor another data challenge in 2017. It will follow the same general format and be open to college students and professionals. For more information, visit the GSS website at *http:// community.amstat.org/government statisticssection/home*.

GSS is also sponsoring the Seasonal Adjustment Practitioners Workshop, a oneday conference for attendees to share their experiences in producing seasonal adjustments, describe interesting problems, discuss best practices, and present applied research.

The workshop will be November 4 from 8 a.m. to 4:00 p.m. at the Bureau of Labor Statistics, 2 Massachusetts Ave., NE, Washington, DC 20212. There is no cost to attend the workshop, but registration is required. Go to *www.eventbrite*.

*com* and search for the name of the workshop.  $\blacksquare$ 

#### Statistics in Epidemiology

The Statistics in Epidemiology (SIE) Section of the ASA invites applications for best paper awards from young investigators who will present their papers at JSM 2017 July 29 to August 3, 2017, in Baltimore, Maryland.

The awards are open to all current graduate students in statistics, biostatistics, and epidemiology and recent graduates who received their degrees no earlier than December 31, 2014.

The top paper will be awarded the Norman Breslow Prize, which includes a \$1,000 stipend. Additional awards consisting of \$800 to help defray travel costs to JSM also will be awarded. A reception will be held at the Baltimore meeting to honor award recipients.

To apply for the award, submit a paper no later than November 15. Early submissions are encouraged. Along with the paper, include a cover letter stating where you are a current student or your year of graduation if you are a recent graduate. Submissions should be sent to Yueh-Yun Chi at *yychi@ufl.edu*. Questions may be addressed to Susan Shortreed at *shortreed.s@ghc.org*.

For submission details, visit the Statistics in Epidemiology Section news at *http://bit.ly/2cnZHde*. ■

# section news

#### Physical and Engineering Sciences

SPES sponsored five invited, two topic-contributed, and four contributed paper sessions, as well as one contributed poster session at JSM. The following section members received a certificate and cash award in the contributed paper competition:

#### Outstanding Presentation Award

Jonathan Hobbs, "Remote Sensing Retrievals for Atmospheric Carbon Dioxide: Quantifying Uncertainty in the Presence of Nonlinearity and Nuisance Parameters"

#### Runners-Up

Jonathan Stallings, "Analysis of Split-Plot Designs with Whole-Plot and Split-Plot Measurements" Wilmina Marget, "Box-Behnken–Type Experimental Designs for Multiple Responses with Different Models"

Honorable Mentions Yuliya Marchetti, "Spatial Data Compression via Adaptive Dispersion Clustering" Byran Smucker, "A Meta-Analysis of Response Surface Studies" Oksoun Yee, "Innovative and Efficient Definitive Screening Designs with an Asymptotic Method for Defining the End of Primary Drying Time to Optimize the Freeze-Drying Process" ■

#### **Statistical Education**

#### Reported by Jennifer J. Kaplan

The section had a productive JSM 2016 under Section Program Chair Pat Humphrey, sponsoring or co-sponsoring six invited panels/sessions, seven topic-contributed panels/sessions, eight contributed paper sessions, one traditional poster session, and 11 roundtables. Six section members were named as new ASA fellows.

Dalene Stangl will chair the section's 2017 JSM program, with Kelly McConville serving as the 2018 JSM program chair.

In the spring 2016 section elections, the following section members were elected:

- Beth Chance of Cal Poly -San Luis Obispo, Chair-Elect
- Erin Blankenship of the University of Nebraska, Council of Sections Representative
- Kay Endriss of Career Center High School, Publications Officer
- Garrett Grolemund of RStudio, Inc. and Rebecca Nugent of Carnegie Mellon University, Executive Committee Members at Large
  ■

#### **Biometrics**

#### *Edited by Sheng Luo, Biometrics Section Publications Officer*

The Biometrics Section held its annual business committee meeting at JSM 2016 in Chicago, Illinois. Complete minutes of the meeting will be available on the section's website at *www.bio.ri.ccf.org/ Biometrics.* 

#### **Award Applications Invited**

The section is seeking applications for the 2017 David P. Byar Young Investigator Award. This annual award is given to an earlystage investigator for best paper to be presented at JSM. It commemorates the late David Byar, a biostatistician who made significant contributions to the development and application of statistical methods and who was esteemed as an exceptional mentor during his career at the National Cancer Institute. The winner will receive \$2,000.

All materials must be submitted electronically between November 1 and December 1. Questions should be sent to the 2017 Byar Award chair, Debashis Ghosh, at *debashis.ghosh@ucdenver.edu*.

#### **Call for Proposals**

The section also invites applications for funding to support projects developing innovative outreach projects focused on enhancing awareness of biostatistics among quantitatively talented U.S. students. Of particular interest are projects that will encourage students to pursue advanced training in biostatistics. The section anticipates funding up to three projects this year, with total funding of up to \$3,000-\$5,000 per project. The project timelines would be from 1.5-2 years. All investigators are encouraged to apply. Award recipients must be an ASA member and Biometrics Section member before project initiation.

A three-page application is due by December 12. A project period with a start date no earlier than January 1, 2017, and an end date no later than December 31, 2018, also should be specified.

Applications should be submitted electronically to the Strategic Initiatives Subcommittee chair, Page Moore, at *Pmoore@ uams.edu*. All investigators will be expected to submit a brief report at the conclusion of the project to the subcommittee chair. Questions may be addressed to Moore or Tanya Garcia at *Tpgarcia@sph.tamhsc.edu*.

Visit the Biometrics Section news at *http://bit.* ly/2c9lODv details. To view section news in its entirety, visit *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*). 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*.

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*.

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.

#### Maryland

Data Management Services, Inc., at NCI-Frederick invites applications for a R statistician/data scientist. Required: PhD in biostatistics, statistics or related field; demonstrated expertise in R, RStudio and R package development; strong oral and writing communication skills. Candidates will work closely with the director, statistical consulting, in performing cancer and AIDS research. Details are available at *www.dmsinc. com* EOE.

#### Massachusetts

Amherst College invites applications for a position as a lecturer in statistics, with an appointment to begin in July 2017. We seek candidates who are passionate about teaching statistics to undergraduates. This is a full-time three-year appointment, with multiyear renewal contingent on successful review. Renewal is based on teaching and the other responsibilities of the lecturer. The position description can be found at *www.amherst.edu/ academiclife/dean\_faculty/faculty\_ hiring/employment.* Amherst College is an equal opportunity employer and encourages women, persons of color, and persons with disabilities to apply. The college is committed to enriching its educational experience and its culture through the diversity of its faculty, administration, and staff.

Tenure Track Assistant/Associate Professor, Mathematical Sciences. Bentley University, a private business university outside Boston, invites applications for two full time positions in applied statistics or related fields for fall 2017. Bentley offers degrees in mathematical sciences, actuarial science, MS in business analytics and a business PhD. Doctoral degree required in applied statistics or a related field by fall 2017. Interested applicants visit: jobs.bentley.edu/postings/2070. Bentley University is an Equal **Opportunity Employer**, building strength through diversity.

#### **Michigan**

■ The University of Michigan Department of Statistics, Ann Arbor, invites applications for an assistant professor, to begin September 1, 2017. Applicants with interests in data science will be considered for appointment at the Michigan Institute for Data Science (MIDAS). Applicants are expected to have demonstrated outstanding research potential and excellence in teaching. Application reviews will begin on November 1, 2016. For more information, visit *lsa.umich.edu/stats.* EOE.

#### Montana

Montana State University in Bozeman welcomes applications for an assistant professor of statistics position in the department of mathematical sciences. We are particularly interested in candidates with research interests in Biostatistics, Bayesian methods, statistical computing, or statistical methods for high dimensional data analysis. For the complete job description and application procedures, go to *jobs. montana.edu/postings/6056.* Montana State University is an AA/ADA/EEO/ Vet Pref Employer.

#### **New York**

Weill Cornell Medicine seeks a highly motivated and enthusiastic individual: Within the Dalio Institute of Cardiovascular Imaging in the Department of Radiology, the biostatistician will perform health services research by conducting statistical analysis for a variety of projects. This position will contribute to advancement of research both scientifically and statistically in a multidisciplinary research team. For more info, please visit: *careers.weill.cornell.edu. Job ID #30638* EOE.

#### **North Carolina**

■ The Department of Biostatistical Sciences (DBS), Wake Forest School of Medicine, Winston-Salem, NC, invites applications for tenure-track assistant or associate professor positions. A vibrant unit with 24 faculty, DBS has an extramural funding record including geriatrics, cardiovascular disease, diabetes, women's health, population genetics, and cancer control. PhD in biostatistics, statistics, informatics, or related field with experience collaborating with medical or public health professionals preferred. www.phs. wakehealth.edu/public/jobs.cfm EOE.

#### THE UNIVERSITY OF IOWA College of Public Health

The Department of Biostatistics at The University of Iowa College of Public Health invites applications for two open tenure-track faculty positions at the rank of Assistant Professor. Exceptional applicants will also be considered at the rank of tenured or tenuretrack Associate/Full Professor. The Department is looking to hire faculty who will either enhance areas complement or of existina methodological research expertise. However, qualified candidates with all areas of expertise will be given full consideration.

The positions require a PhD or equivalent in Biostatistics, Statistics, or a related area.

See http://jobs.uiowa.edu/ (requisition # 69445) for the complete position description and electronic application information.

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

# Come to your Census

Join the Census Bureau to help produce quality data that enable Americans to better understand our country - its population, resources, economy, and society.

## Your work as a Mathematical Statistician at the Census Bureau

- Design sample surveys and analyze the data collected.
- Design and analyze experiments to improve survey questionnaires and interview procedures.
- Improve statistical methods for modeling and adjustment of seasonal time series.
- Perform research on statistical methodology that will improve the quality and value of the data collected.
- Publish research papers and technical documentation of your work.

#### Requirements

- U.S. citizenship
- Bachelor's, Master's or Ph.D with at least 24 semester hours in math and statistics (see website for more specifics on required coursework)

Apply at www.census.gov, click on Jobs@census, Headquarters and NPC Employment Opportunities, Mathematical Statistician

#### The U.S. Census Bureau is an Equal Opportunity Employer.





An Employee-Owned Research Corporation\*

#### EOE

### **Statistical Career Opportunities with Westat**

Westat is an employee-owned corporation headquartered in Rockville, Maryland. We provide statistical consulting and survey research to the agencies of the U.S. Government and to a broad range of business and institutional clients. With a strong technical and managerial staff and a long record of quality research, Westat is a leader in the statistical services field.

We are currently recruiting for the following positions:

Senior Survey Sampling Statistician—International Surveys Westat is seeking a senior survey sampling statistician for work on international surveys in developing nations. This position requires a master's degree in statistics or survey research coupled with seven (7) or more years in sample survey design, or a PhD in statistics or survey research and five (5) or more years in sample survey design. Candidates would benefit from knowing SAS, R, and other statistical software packages although candidates are not required to do programming.

Senior Manager, Statistical Computing Unit This position requires candidates to have a strong statistical or other quantitative background and at minimum a master's degree in computer science, statistics, math, physics, or a related data science coupled with at least ten (10) years of experience in statistical or other data-intensive computing. Five (5) years of supervisory experience is also required.

**Senior Survey Sampling Statistician** This position requires a master's degree in survey sampling, statistics, survey research, or a related field with twelve (12) or more years in sample survey work or a PhD in survey sampling, statistics, survey research, or a related field and ten (10) or more years in sample survey work. Candidates would benefit from knowing SAS, R and other statistical software packages although candidates are not required to do programming.

Biostatistician Westat is seeking a biostatistician or statistician with experience analyzing health data. A master's degree in biostatistics or statistics and five (5) years of experience or a PhD in biostatistics or statistics is required.

Senior Biostatistician This position requires a master's degree in biostatistics or statistics and ten (10) years of experience, or a PhD in biostatistics or statistics and five (5) years of experience. Experience leading research teams, and knowledge of SAS or R is also required.

Westat is an Equal Opportunity Employer and does not discriminate on the basis of race, creed, color, religion, sex, age, national origin, veteran status, disability, marital status, sexual orientation, citizen status, genetic information, gender identity, or any other protected status under applicable law. To apply, go to **www.westat.com/careers**.

www.westat.com

#### Pennsylvania

The Wharton Department of Statistics, University of Pennsylvania, is seeking full-time, tenure-track faculty at any level: assistant, associate, or full professor, appointment beginning July 2017. Applicants should show outstanding capacity in research and teaching. Applicants must have a PhD (expected completion by June 30, 2018 is acceptable) from an accredited institution. Please visit our website to apply: *https://* statistics.wharton.upenn.edu/recruiting/ *facultypositions*. Questions can be sent to statistics.recruit@wharton.upenn.edu. The University of Pennsylvania is an EOE. Minorities / Women / Individuals with disabilities / Protected Veterans are encouraged to apply.

# Samsi Postdoctoral Fellowships for 2017

The Statistical and Applied Mathematical Sciences Institute (SAMSI) is soliciting applications from statistical and mathematical scientists for up to 6 postdoctoral positions for the SAMSI Research Programs for 2017-2018: **Program on Mathematical and Statistical Methods for Climate and the Earth System (CLIM)** and **Program on Quasi-Monte Carlo and High-Dimensional Sampling Methods for Applied Mathematics (QMC)**. Appointments will begin in August 2017 and will typically be for two years, although they can also be arranged for one year. Appointments are made jointly between SAMSI and one of its partner universities, where teaching opportunities may be available. The positions offer extremely competitive salaries, travel stipend, and health insurance benefits.

Criteria for selection of SAMSI Postdoctoral Fellows include demonstrated research ability in statistical and/or applied mathematical sciences, excellent computational skills and the ability to communicate both verbally and in written form. Finally, the preferred applicant will have a strong interest in the SAMSI program areas offered. The deadline for full consideration is December 15, 2016, although later applications will be considered as resources permit.

Please specify which of the two SAMSI research programs you are applying for in your cover letter and why you believe you would be a good fit for SAMSI and the program you choose.

#### To apply, go to mathjobs.org: SAMSIPD2017 Job #8986 To see these programs visit: www.samsi.info/QMC and www.samsi.info/CLIM

SAMSI is an Affirmative Action/Equal Opportunity employer

### ASSISTANT PROFESSORS OF BIOSTATISTICS

The Division of Biostatistics, School of Public Health, at the University of Minnesota is announcing openings for two tenure-track faculty positions at the Assistant Professor rank.

We are especially interested in applicants with a PhD in statistics or biostatistics who have academic and research records in (1) spatial and spatiotemporal statistics, especially as applied in environmental or climatological science and related health impacts, and (2) the development of innovative approaches, methods, and software for the manipulation and analysis of "big data" in the biomedical sciences, especially related to biomedical imaging, medical health records data, bioinformatics/-omics, wearable computing technology, and other applications of machine learning. We will however consider applications from candidates in other important related research areas, as well as those with PhDs in areas besides biostatistics.

A successful candidate will be responsible for teaching classes, advising students at the graduate level, writing methodological research papers, and developing externally funded grant applications. The candidate will also serve on various division and school level committees.

The Division has significant strengths in the broad areas targeted by this search. Current research in statistical methodology includes causal modeling, adaptive clinical trials, statistical genetics and bioinformatics including genomics and proteomics, analysis of spatial and longitudinal data, medical imaging methods, Bayesian methods, computer-intensive methods such as Markov chain Monte Carlo, survival analysis, and statistical data mining. Our faculty's methods grants complement our larger, more collaborative research projects with investigators in the University's Academic Health Center.

At the present time, the Division has statistical and data coordinating centers for NIH-funded clinical trials networks in HIV/AIDS, Ebola and other infectious diseases, and in lung and cardiovascular disease. The Division also collaborates actively on research in cancer prevention and treatment, dentistry and periodon-tology, psychiatry/psychology, environmental and occupational health, health policy, chronic and neurodegenerative diseases, and smoking prevention. Multi-year grants and contracts for various Divisional projects total over \$150 M.

The Division of Biostatistics (sph.umn.edu/biostatistics) currently includes 35 graduate faculty and 65 staff. The Division offers MS, MPH, and PhD degrees as well as a Certificate in Applied Biostatistics, and interacts in teaching, advising and research with the University of Minnesota School of Statistics, with whom we share a "4/1" (BS/MS) program. The Division currently has 70 graduate students (31 MS and 39 PhD).

The salary range for these positions will be very competitive, and the University of Minnesota offers excellent fringe benefits. Applications received before November 4, 2016 will be given first consideration for an interview; however, we will continue to accept applications until the positions are filled.

Applicants should submit a cover letter, current curriculum vitae, and the names of at least three references online at <z.umn.edu/312432>. Please reference requisition #312432. In addition, a letter of recommendation from each of the three references should be sent to: biosearch@biostat.umn.edu.

The University of Minnesota is an equal opportunity educator and employer



UNIVERSITY OF MINNESOTA School of Public Health

**Division of Biostatistics** 

#### Utah

The Department of Mathematics at the University of Utah invites applications for the following faculty positions: Full-time tenure-track or tenured appointments at the level of assistant, associate, or full professor in all areas of statistics. Applications must be completed through the website www.mathjobs.org/ jobs/Utah, and will be accepted until the position(s) have been filled. For additional information see www.math.utah. edu/positions. The University of Utah is an Equal Opportunity/Affirmative Action employer and educator. Minorities, women, veterans, and those with disabilities are strongly encouraged to apply. Veterans' preference is extended to qualified veterans. Reasonable disability accommodations will be provided with adequate notice. For additional information about the University's commitment to equal opportunity and access see: www.utah.edu/nondiscrimination.

#### Virginia

Research Statistician/Scientist. The Insurance Institute for Highway Safety, a leading research and communications organization in Ruckersville, VA, seeks individual with strong research design, analysis, and writing skills and interest in solving real-world problems. Duties include development of research methods, collection/analysis of data, and written/oral presentation of results. PhD preferred. Competitive salary, excellent benefits, and generous technical support. Email résumé and cover letter to *research@iihs.org*. EOE.

### USC University of Southern California

#### **Biostatistics Faculty Job Description: Department of Preventive Medicine**

The Department of Preventive Medicine of the Keck School of Medicine of USC is seeking an experienced biostatistician with an interest in a full-time position in education. The position is within the non-tenure track and will be at a rank appropriate for the experience of the faculty member. The department teaches a broad array of courses in biostatistics at levels ranging from undergraduates to advanced graduate students. Areas of focus for teaching include general biostatistical methods, data analysis with focus on both simple and multivariate models, application of biostatistical methods to complex data sets using a variety of software programs (e.g. SAS, Stata, SPSS, R), and probability and statistical theory. Teaching responsibilities would focus on courses in our graduate program in biostatistics (master's and Ph.D.), but could also include data-analysis courses within our MPH and undergraduate programs. There are opportunities to develop new classes in areas related to biostatistical methods or applications. While the emphasis is on education, limited time could be available for collaborative research.

Candidates should have a doctoral degree in biostatistics or a related field and teaching experience in one or more academic training programs. Research and consulting experience, particularly involving the application of biostatistical methods to the analysis of data from a health-related field, is desirable.

The University of Southern California (USC), founded in 1880, is located in the heart of downtown L.A. and is the largest private employer in the City of Los Angeles. As an employee of USC, you will be a part of a world-class teaching and research university and a member of the "Trojan Family," which is comprised of the faculty, students and staff that make the university what it is.

USC is an equal opportunity/affirmative action employer. Women and minorities are strongly encouraged to apply. Please send curriculum vita, a brief summary of teaching and research experience, and names and contact information for three individuals who are familiar with your academic accomplishments to: Jim Gauderman, Ph.D. Professor and Chief, Division of Biostatistics, Department of Preventive Medicine, Keck School of Medicine of USC, 2001 N. Soto St., Room 202-K, Los Angeles, CA 90032, JIMG@usc.edu.

#### Nationwide

■ RAND Corporation is seeking PhD statisticians for exciting opportunities to collaborate on multidisciplinary public policy research projects. Openings exist for recent graduates and experienced statisticians. See our ad in the September issue of *Amstat News* for details or go to *www.rand.org/statistics*. Applications received by December 15, 2016, will receive priority. Applications must be submitted online following the instructions at *www.rand.org/jobs/id4194*. Send questions to *Lou\_Mariano@rand.org*. EOE M/F/Vet/Disabled. ■



The Department of Statistics at The Pennsylvania State University invites applications for one or more tenure-track positions, including at least one assistant professor position and the possibility of an additional open-rank position. Penn State University has launched a multi-college data sciences degree program, and one of these positions is expected to support this effort.

The Statistics Department is part of the Eberly College of Science at Penn State, which accounts for over one hundred million dollars of research expenditures annually. A conservative analysis of the most recent National Research Council (NRC) data for basic science programs at research universities places Penn State Science clearly in the top ten in the United States. The Statistics Department itself has more than 25 tenure-line faculty members and more than 40 faculty members total, engaged in a wide variety of teaching and research. The research activity is both theoretical and applied, with collaborative ties to other departments in the College of Science (e.g., biology and astronomy) as well as other colleges across the university (e.g., Earth and Mineral Sciences, Engineering, Health and Human Development, and Medicine). Multiple institutes at Penn State (e.g., the Huck Institutes of Life Sciences, Penn State Institutes of Energy and the Environment, and the Institute for Cyberscience) support inter-disciplinary research and involve multiple statistics faculty members in collaborative research.

Penn State is located in the center of Pennsylvania, in a valley surrounded by the Appalachian Mountains and state forestland. The adjoining town of State College combines many amenities typically found in large metropolitan areas with the benefits of a small town boasting a highly educated population. Additional information about the department can be found at *http://www.stat.psu.edu/*. Applicants must apply online and complete the Penn State application at *https://psu.jobs/job/66021* and must apply online and submit application materials, including cover letter, CV, research and teaching statements, and three letters of reference, through *mathjobs.org* (*https://www.mathjobs.org/jobs/jobs/9028*).

**CAMPUS SECURITY CRIME STATISTICS:** For more about safety at Penn State, and to review the Annual Security Report which contains information about crime statistics and other safety and security matters, please go to *http://www.police.psu.edu/clery/*, which will also provide you with detail on how to request a hard copy of the Annual Security Report.

Penn State is an equal opportunity, affirmative action employer, and is committed to providing employment opportunities to all qualified applicants without regard to race, color, religion, age, sex, sexual orientation, gender identity, national origin, disability or protected veteran status.



#### HARVARD UNIVERSITY DEPARTMENT OF STATISTICS TENURE-TRACK PROFESSOR OF STATISTICS

The Department of Statistics at Harvard University invites applications for a tenure-track professor for the 2017-18 academic year. We seek exceptionally strong candidates in any field of statistics and probability, as well as in any interdisciplinary areas where innovative and principled use of statistics and/or probability is of vital importance. Candidates should have with strong doctoral records and exceptional teaching and research experience or with the promise of achieving such distinction.

The appointment is expected to begin on July 1, 2017. Doctorate or terminal degree in Statistics or a related discipline will be required by the start date of the appointment. The tenure-track professor will be responsible for teaching at the undergraduate and graduate levels.

Please submit the following materials through the ARIeS portal (<u>https://academicpositions.harvard.edu/postings/7064</u>) Applications should include a cover letter, a *Curriculum vitae*, a Teaching Statement (describing teaching approach and philosophy), evidence of teaching excellence (e.g., course evaluations, if available), a research statement, and representative publications, if applicable. Applicants should also submit names and contact information of 3-5 references. Three letters of recommendation are required, and the application is considered complete only when at least 3 letters have been received.

Submission of an application by January 4, 2017 will ensure consideration during the current academic year.

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



The Department of Statistics at The Pennsylvania State University is seeking to fill multiple visiting assistant professor positions created to honor the memory of our late colleague Bruce G. Lindsay and his commitment to the mentoring of young scientists and teachers. The visiting assistant professors will receive very competitive salary and benefits, teach one course per semester in an environment supportive of the latest innovations in statistical education, and conduct research under the close mentorship of prominent faculty in various areas of statistical methodology and applications. These include, but are not limited to: (i) statistical inference and non-/semi-parametric modeling for high dimensional data, under the mentorship of Runze Li (*http://www.personal.psu.edu/ril4*); (ii) data privacy and record linkage with applications focus on official statistics, networks, and personalized medicine, among others, under mentorship of Aleksandra Slavkovic (*http://sites.stat.psu.edu/~sesa*); and (iii) functional data analysis and its applications to complex "omics" data, under the mentorship of Matthew Reimherr (*http://www.personal.psu.edu/mlr36*) and Francesca Chiaromonte (*https://sites.psu.edu/chiaromonte*).

The positions will also offer ample opportunity to interact with Penn State world-class faculty, postdocs and graduate students in various interdisciplinary and interdepartmental programs. At the time he/she joins the department, the successful candidate will hold a PhD in Statistics or closely related field, and will receive an initial appointment of two years which could begin as early as October 2016. Review of applications will begin immediately and will continue until the positions are filled. Interested individuals should submit a cover letter indicating their experience, interests, and which position(s) they are applying for, along with a CV and contact information for three references, through *mathjobs.org* (*https://www.mathjobs.org/jobs/jobs/9027*). In addition to the mathjobs.org application, Penn State requires all applicants to complete the application form at *https://psu.jobs/job/65996*. For more information, please visit *stat.psu.edu/lindsay-vap*.

**CAMPUS SECURITY CRIME STATISTICS:** For more about safety at Penn State, and to review the Annual Security Report which contains information about crime statistics and other safety and security matters, please go to *http://www.police.psu.edu/clery/*, which will also provide you with detail on how to request a hard copy of the Annual Security Report.

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#### VIRGINIA COMMONWEALTH UNIVERSITY

The Department of Biostatistics has a 40+ year history in the Virginia Commonwealth University (VCU) School of Medicine, and is committed to excellence in both biostatistical research and graduate education. The department currently has 20 faculty members, 28 full-time students (M.S. and Ph.D.), and 6 professional staff. The department offers both M.S. and Ph.D. degree programs in Biostatistics, including a concentration in Genomic Biostatistics and a M.S. in Clinical Research in Biostatistics. Faculty members in the department maintain an active methodological research portfolio in spatial epidemiology, Bayesian methods, clinical trials, categorical and longitudinal data analysis, survival analysis, computational genomics, etc. In addition, the faculty, staff, and students collaborate actively with clinical investigators on the VCU/ Medical College of Virginia Campus (which includes the Schools of Medicine, Dentistry, Pharmacy, Nursing, and Allied Health) in a wide variety of biomedical research projects. Located in Richmond, Virginia, VCU has established relationships with the Virginia Department of Health, as well as other local and regional health departments. In addition to other computational resources at VCU, the department supports its own high-performance computing cluster.

**Duties and Responsibilities:** Applications are currently being accepted, with flexible start dates, to fill a tenured/tenure eligible faculty position within the department at the level of assistant or associate level. We are seeking applicants with strong training and research in clinical trials, and applications of statistical methods to biomedical sciences. This position is supported (at 50% level) by the VCU Massey Cancer Center (VCU-MCC) – a NCI designated cancer center located on the VCU Medical Center. Primary responsibilities include taking an active role in the design and conduct of Phase I/II clinical trials, develop independent methodological research in related areas of interest, and collaborate extensively with researchers at the VCU-MCC, and the VCU School of Medicine. In addition, the successful applicant will be responsible for teaching and advising graduate students, maintain both collaborative and/or methodological extramural grant support, and provide departmental and university service.

The MCC conducts basic science, translational, clinical and population sciences research on cancer, and includes scientists and physicians from 36 academic departments, 6 schools, and 1 college at VCU. Spanning across multiple cancer types, the key interdisciplinary scientific programs at the MCC include Cancer Cell Signaling, Cancer Molecular Genetics, Cancer Prevention and Control, Developmental Therapeutics, and Radiation Biology and Oncology.

**Qualifications:** Ph.D. degree in biostatistics, or statistics is required. About 5 years of experience as a Ph.D. biostatistician within a cancer center setting is preferred. Applicants must demonstrate experience working in and fostering a diverse faculty, staff, and student environment, or commitment to do so as a faculty member at VCU. In addition, evidence of both methodological and collaborative peer-reviewed publications in clinical trials or related areas, obtaining extramural research support as a co-investigator, teaching experience preferably at the graduate level, and excellent oral and written communication skills are required.

**Instructions:** Apply by visiting *https://www.vcujobs.com/postings/53745* or searching for position number F53040 at *www.vcujobs.com*. Attach a cover letter/letter of application, statement of research and teaching philosophy, curriculum vitae, and contact information for 3 professional references.

Virginia Commonwealth University is an urban, research intensive institution with a diverse university community and a commitment to multicultural opportunities. VCU is an equal opportunity/affirmative action employer. Women, minorities and persons with disabilities are encouraged to apply.

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# #JSM2016 Hashtag highlights

#### Lucy @LucyStats

We were attempting to demonstrate a mixture model but I think this could be best described as "non-normal" #JSM2016

> **ASA** @AmstatNews Some #JSM2016 attendees interpreted stat concepts through dance at last night's dance party for the #JSMchallenge!



**Hadley Wickham** @hadleywickham #JSM2016 protip: hug your laptop while it compiles C++ code in order to stay warm

Miles Ott @Miles\_Ott I wish I could be in 5 places at once! So many strong sessions simultaneously at #JSM2016 **Ben Ackerman** @backerman150 @jtwalsh0 is blowing my mind right now. Awesome work to increase legislative transparency. #JSM2016 saved some of the best for last!

**Angelica** @theWanderlust07 Someone just told me that they enjoyed my talk. Wow! #JSM2016 #rsttimeforeverything #surprise

James Molyneux @jimmylovestea The data viz talks are easily just as invigorating as coffee. @jtleek is smooth talking DSaaS #JSM2016

Mine CetinkayaRundel @minebocek Got plenty out of #JSM2016: met old friends, made new ones, lots of good talks & inspiration + these for the impending doom



TELL US! If statisticians had a mascot, what animal would it be? Share your answer with us on social media. Be sure to tag @AmstatNews.



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# Statistics

The release of SAS/STAT<sup>®</sup> 14.1 brings you more statistical techniques for your data analysis.

#### SAS/STAT 14.1 Highlights

Generalized additive models by penalized likelihood estimation. Apply this technique, which provides automatic model selection by optimizing model fitting criteria, to your large data problems.

**Imputation for survey data.** Employ single and multiple hot-deck and fully efficient fractional imputation methods to handle nonresponse.

#### **Recent SAS/STAT** Highlights

**Analysis for spatial point patterns.** Understand locations of random events, such as crimes or lightning strikes, and how other spatial factors influence event intensity.

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**Proportional hazards regression models for interval-censored data.** Apply these popular regression models in survival analysis when the data are interval-censored.

**Bayesian choice models.** Use Bayesian discrete choice models to model consumer decisions in choosing products or selection from multiple alternatives.



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