February 2018 • Issue #488

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AMSTATNEWS

FEBRUARY 2018 • ISSUE #488

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.

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

features

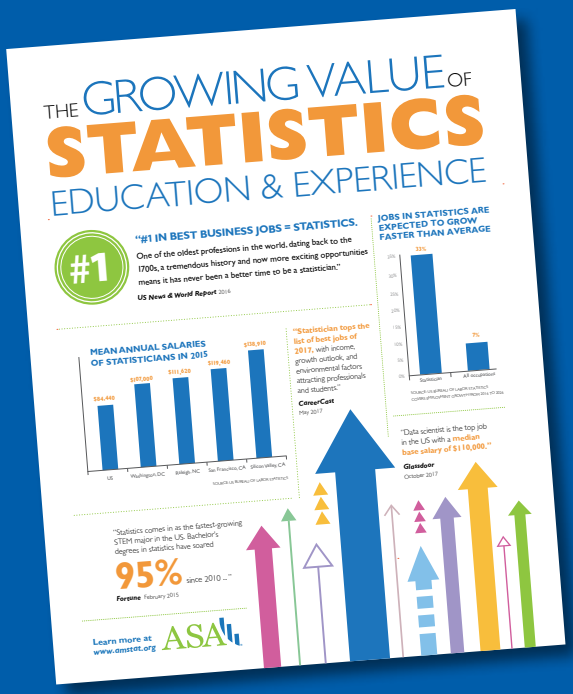
columns

STAT*tr@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*.

This column is written for those interested in learning about the world of Data for Good, where statistical analysis is dedicated to good causes that benefit our lives, our communities, and our world. If you would like to know more or have ideas for articles, contact David Corliss at *davidjcorliss@peace-work.org*.

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

This column is written for statisticians with master's degrees and highlights areas of employment that will benefit statisticians at the master's level. Comments and suggestions should be sent to Megan Murphy, *Amstat News* managing editor, at *megan@amstat.org.*



DOWNLOAD THE ASA'S CAREER POSTER AT *http://bit.ly/2rgO0B9*

KNOW A COLLEAGUE WHO SHOULD BE AN ASA FELLOW?

The designation of ASA Fellow has been a significant honor for nearly 100 years. Individuals are nominated by their ASA-member peers. So hurry, nominations are due March 1.

For deadlines and contact information, see Page 36. To see all ASA awards and special lectureships, visit ***www.amstat.org/ASA/Your-Career/Awards/ASA-Fellows.aspx***.

NOMINATIONS WANTED FOR INTERNATIONAL REPRESENTATIVE TO ASA BOARD

The ASA is searching for individuals to stand for election in spring 2019 for the International Representative to the Board for the period 2020–2022.

To be eligible, the person must have been an ASA member continuously since January 1, 2015, and reside outside the United States.

Send your nominations via email to ASA Executive Director Ron Wasserstein at ***ron@amstat.org*** by March 5.

departments

JSM 2018 Late-Breaking Proposals Due April 16

member news

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#LeadWithStatistics!

I chose #LeadWithStatistics as the 2018 JSM theme to both acknowledge accomplishments of our community and signal my commitment to developing leaders. One of my presidential initiatives is to establish a leadership institute at the ASA that provides resources and opportunities for members to develop leadership skills as they progress through all career stages. My vision is that the institute will be sustaining and become a home for various professional development offerings, both current and planned.

Why choose leadership as a presidential initiative? We've accomplished a lot in this space, thanks to initiatives of past ASA presidents. But there is both a real and perceived need out there for focused leadership training and better leaders. We have talked much about leadership during meetings and successfully taught leadership concepts and skills at JSM workshops, so how do we go to the next level?

In thinking about what an ASA leadership institute might provide, I have the following three goals in mind:

1. Some statisticians will become **leaders of groups of statisticians** during their careers. They may be selected for senior leadership positions based on their technical expertise and accomplishments or as a natural next step in their career progression within an organization. It is likely their previous education will not have included a solid foundation in leadership principles. Offering the opportunity to learn both the theory behind good leadership and its application, ideally through actual case studies, would benefit ASA members who find themselves on a leadership career path or taking on a leadership role for a project or volunteer activity.

2. Most statisticians will experience being **part of a multi-disciplinary project team or working group** at some point during their careers, due to the nature of our profession, and for many, this participation will be a key determinant of their ability to have a positive impact through their work. The ability to carry an important point or influence other team members, possibly even assume a leadership role within the group, will be enhanced with strong leadership skills. This is referred to as emergent leadership, as opposed to assigned leadership, and is often thought to be even more difficult than its counterpart, because no direct line of authority exists between the leader and the fellow team members. Influence is a key factor in determining who will lead or whose voice will be heard as the team moves forward to achieve its goals. ASA members who have had the opportunity to learn sound principles of emergent leadership will benefit in such settings.

3. All of us are influenced by **leaders of organizations**, in the workplace and beyond, and effective leaders rely on sound judgment, logical thinking, and the ability to derive solutions or make decisions using analytical methods. Statistics is a key component of analytical decision making, and decision making should be one of the foundational components of any leadership training program. If we make opportunities for advanced learning decision analytics to leaders of all disciplines, ASA members will benefit.

Lisa LaVange

Before getting into specifics, a brief tour through history is needed.

In the fall of 2011, I had the opportunity to co-develop and co-teach a doctoral-level course in statistical leadership for UNC's Biostatistics Department with Bill Sollecito, former director of the Public Health Leadership Program. A committee to evaluate the need for such a course soon realized many of our graduates had achieved leadership positions in their careers and thought it was high time we provided some formal training before they left us. The pilot year had a small group of dedicated students and was the subject of two *Amstat News* articles in 2012 (see *http://bit.ly/2DjfXdV* and *http://bit.ly/1gB4u60*), thanks to then–ASA president-elect Bob Rodriguez's agreeing to represent the leaders-of-voluntary-organizations category for the case studies portion of the course. Based on his experience leading the strategic planning effort as an ASA Board member, Bob led a class exercise that was both informative and inspiring.

As 2012 ASA president, Bob led an initiative on effectively communicating statistics and suggested a leadership initiative as a nice extension. When 2013 President-elect Nathaniel Schenker took up

Former ASA President Nancy Geller, Former ENAR President Dubois Bowman, and Former ASA President Bob Rodriguez share their leadership stories at JSM 2017.

the charge, an ad hoc committee on leadership was formed with Janet Buckingham as chair. Janet and the current chair, Gary Sullivan, led the effort to develop the first JSM workshop for the 2014 meeting in Boston. And the rest is history!

Back to the present—we have five wonderfully talented steering committee members to advise us as we move forward with the institute:

- Erica Groshen (*www.ilr.cornell.edu/people/erica-groshen*) – Visiting Senior Scholar at the Industrial and Labor Relations School at Cornell University and former Commissioner of Labor Statistics (2013–2017)
- Debbie Hughes (*www.bhef.com*) – Vice President for Higher Education and Workforce Development at the Business and Higher Education Forum
- Michael Rappa (*http://analytics.ncsu.edu*) – Goodnight Director and Distinguished University Professor, Institute for Advanced Analytics at North Carolina State University
- Bob Rodriguez (*http://bit.ly/2rdfibI*) – Senior Director in SAS Research and Development and former ASA President
- Aarti Shah (*http://bit.ly/2mVPqfZ*) – Senior Vice President and Chief Information Officer and former Vice President of Biometrics and Advanced Analytics at Eli Lilly and Company

The steering committee held two brain-storming sessions in 2017 and their first face-to-face meeting in late January of this year to discuss when and how to reach statisticians in their career trajectories to be the most effective. I plan to feature each member in future articles, but asked Bob Rodriguez to provide his thoughts, which he does here:

> Statisticians have always sat across the table from people in other fields such as medicine, business, and management. We have been expected to contribute from our end by collaborating, consulting, and computing—but seldom at the start of the discussion.
>
> That expectation is changing because data are now viewed as the key to strategic goals, not just a technical resource. As one executive told me, "The most valuable people in my organization contribute in the middle of the table, between technical people at one end and management people at the other end. I need statisticians who can move to the middle by formulating problems, identifying relevant data, and bringing others along in the discussion."
>
> I like to describe statistical leadership as "moving to the middle" because it helps us understand that leadership flows from influence, rather than a management title. We can all become statistical leaders by recognizing a critical problem; moving to the center of the issue; and influencing others to initiate change, develop solutions, or create value.

A key element of the JSM leadership workshop, and any leadership course for that matter, is the opportunity to hear how current leaders chose their particular career path and what lessons they learned along the way and are willing to share. Another article in this issue of *Amstat News (*San Francisco Bay Area Chapter Hosts Career Development Panel, Page 34*)* features a summary of a session consisting of just those stories.

My intent in selecting the 2018 JSM theme #LeadWithStatistics was to keep the spotlight shining on the importance of effective leadership and our community's contributions. This choice was somewhat of a play on words, in that athletes lead from their point of strength, like a boxer leading with the stronger arm. I happen to think many multidisciplinary settings would benefit from having more strong statistical leaders. But statistics is such a critical component of effective leadership for leaders of any discipline—statistics helps us make sense of vast amounts of information, appreciate uncertainty in our predictions, and be better decision makers. What leader would not be better off leading from this strong suit? As this initiative advances, we hope to find novel and concrete ways to make this suit even stronger for interested ASA members.

Happy February!

Lisa LaVange

Highlights of the November 17–18, 2017, ASA Board of Directors Meeting

The ASA Board, led by 2017 President Barry Nussbaum, met at the ASA headquarters in Alexandria, Virginia, for its final meeting of 2017. The board was joined by the incoming members elected to serve in 2018–2020. Highlights of the meeting follow.

Discussion Items

- Led by **Paul Gallo**, 2018 chair of the ASA Committee on Fellows, the board discussed aspects of the ASA Fellows program. The committee was interested in the board's interpretation of portions of the requirements for ASA Fellow. No changes are planned for 2018, but further discussion is likely.
- The board conducted its annual review of the ASA Strategic Plan. Since the plan was thoroughly revised during 2016, no changes were recommended.

Action Items

- After hearing reports from **Steve Pierson**, ASA director of science policy; **Jerry Reiter**, chair of the ASA Scientific and Public Affairs Advisory Committee; and **Jake Bournazian**, chair of the ASA Privacy and Confidentiality Committee, the board formally endorsed the report of the Commission on Evidence-Based Policymaking, titled "The Promise of Evidence-Based Policymaking."
- The board adopted a statement titled, "Drawing Voting Districts and Partisan Gerrymandering: Preparing for 2020." The statement, which may be issued jointly with the American Mathematical Society, notes that existing requirements for districts generally do not prevent partisan gerrymandering; that it has become easier to design district plans that strongly favor a particular partisan outcome; and that modern mathematical, statistical, and computing methods can be used to identify district plans that give one of the parties an unfair advantage in elections. Reiter and Pierson were instrumental in the development of this paper.
- The board adopted in principle a position paper on appropriate ways of evaluating academic faculty in statistics and biostatistics in

2017 Board of Directors

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a collaborative working environment. The paper was developed by a large group of statisticians led by **William Bridges** and **Bruce Craig**. Small editorial changes were recommended, which, once made, will lead to the paper's formal adoption by the Executive Committee of the Board.

- The board also agreed in principle (conditional on minor changes) to the creation of a new ASA award to recognize excellence in the statistical use of administrative records and alternative data sources in government statistics. The award is being created in honor of statisticians **Connie Citro, Robert Groves**, and **Fritz Scheuren**.

- The board formed a task force on sexual harassment and assault, to be chaired by **Leslie A. McClure** of Drexel University. The charge of the committee can be found at *http://bit.ly/2mozYIG*.

- The board allocated funds to engage a consultant to assist the board in collecting data and preparing for a discussion at its next meeting about how the ASA should position itself with respect to data science.

Reported Items

- Associate Executive Director and Director of Operations **Steve Porzio** updated the board on ASA financials for 2017. He said net revenue for 2017 is expected to be positive.

- ASA Treasurer **Amarjot Kaur** reported on the ASA's investments. She said the market value of ASA investments was about $20 million as of September 20. She noted the Finance Committee had met with our investment advisers and that no change in investment policy was recommended at this time.

- **Nancy Potok**, chief statistician of the United States, updated the board on matters related to the federal statistical system and the report of the Commission on Evidence-Based Policymaking. She was a member of that commission.

- **John Thompson**, director of the Council of Professional Associations on Federal Statistics (COPAFS) and former director of the Census Bureau, updated the board on the activities and goals of COPAFS.

- The Council of Chapters Governing Board (COCGB) and the Council of Sections Governing Board (COSGB) reported on their recent activities. The COSGB has been working with interest groups to provide funding. The COSGB has created a "Getting Started" guide for people interested in starting an interest group. Two new interest groups have recently

formed: Statistical Auditing and History of Statistics. The COCGB highlighted the success of its "chapter stimulus funding" program, which the board extended for an additional two years.

- ASA Vice President **Rob Santos** reported on the 2017 activities of the Education Council and the plans of the various council entities. Council reports are a key way the board and committees stay in contact with one another.
- **Amanda Malloy**, ASA director of development, updated the board on the development program. She reported the outcome of a recent benchmarking study involving the development programs of associations belonging to the Joint Policy Board on Mathematics (JPBM) and Consortium of Social Science Associations (COSSA). Malloy said the study was encouraging, showing us to be about where we should expect to be relative to other societies with respect to the age of the development program. She also reported that 2017 fundraising is going well and the recent matching campaign has been a success.
- Executive Director **Ron Wasserstein** reported that the ASA will be ready in early 2018 to launch its "Count on Stats" campaign. The ASA, in partnership with other organizations in the statistical community, is promoting and defending the federal statistical system and its important work through a public outreach initiative to enhance awareness of the importance, reliability, and trustworthiness of government data. Count on Stats is designed to elevate the public discourse about government data and the value of the system.
- The board reviewed the interim report of the AAPOR-ASA Task Force on Improving the Climate for Surveys. The task force is chaired by former AAPOR President **Peter Miller** and former ASA Board member **Cynthia Clark**. (AAPOR is the American Association for Public Opinion Research.) The board noted that many of the recommendations of the task force dovetail with the goals of the ASA's Count on Stats campaign.

Nominations Wanted for International Representative to ASA Board

The ASA is searching for individuals to stand for election in spring 2019 for the International Representative to the Board for the period 2020–2022.

To be eligible, the person must have been an ASA member continuously since January 1, 2015, and reside outside the United States.

Send your nominations via email to ASA Executive Director Ron Wasserstein at *ron@amstat.org* by March 5.

- Director of Science Policy **Steve Pierson** reported on the ASA's recent efforts to support funding for statistical agencies and research, to track the report of the Commission on Evidence-Based Policymaking and the resulting legislation, and to continue support of former head of the Greek statistical system, Andreas Georgiou. Pierson said he is also monitoring the administration's efforts to defund forensic science activities at the National Institute of Standards and Technology and to terminate the National Commission for Forensic Science at the Department of Justice.

Nussbaum thanked the ASA staff for its work and for supporting him so well. He also expressed appreciation for the board's commitment to the ASA and its active participation at the board meetings and throughout the year. He said these are what make the ASA run well.

The board meets again April 13–14, 2018, at ASA headquarters. ■

*This*IsStatistics Challenges Students to Apply Stats Skills for Greater Good

Jill Talley

The ASA's public education campaign, *This*IsStatistics, expanded its educational footprint in 2017 on "all things statistics" with high-school and undergraduate students in today's increasingly digital and mobile world.

Police Data Challenge

In the Police Data Challenge, students helped make communities safer by analyzing emergency call data from metropolitan police departments in Baltimore, Cincinnati, and Seattle. The ASA joined forces with the Police Data Initiative in this unique partnership to provide students with open and publicly accessible data sets on emergency calls, giving them an opportunity to apply their savvy statistical skills to an important cause and providing major cities with a better understanding of the value and use of statistics in public safety. Hundreds of students from across the United States participated, and the following winners were recently announced:

Best Overall Winners

Undergraduate: Jimmy Hickey, Kapil Khanal, and Luke Peacock - Winona State University (Sponsored by Silas Bergen)

High School: Catalina Bartholomew, Sophie Mason, Grace Ding, and Allie Restani - Valley Christian High School, San Jose, California (Sponsored by Claudia Smith)

Best Visualization Winners

Undergraduate: Julia Nguyen, Katherine Qian, Youbeen Shim, and Catherine Sun - University of Virginia (Sponsored by Jordan Rodu)

High School: Alex Lapuente, Ana Kenefick, and Sara Kenefick - Charlotte Latin School, Charlotte, North Carolina (Sponsored by Donna Minnig)

Best Use of External Data Winners

Undergraduate: Luke Zheng, Qianyu Liu, Scott Lai, Sicheng Chu, and Xi He - University of Wisconsin (Sponsored by Karl Rohe)

High School: Alaina Cerro, Sean Conroy, and Elise Bermudez - Bethel Park High School, Bethel Park, Pennsylvania (Sponsored by Lee Cristofano)

MORE ONLINE
With graduation inching closer, check out *thisisstatistics.org* for more dynamic education tools and resources, including data about statistics degrees and career projections from the Bureau of Labor Statistics, to help foster statistical literacy and excitement in the next generation of critical thinkers.

What's Going On in This Graph?

Teaming up with *The New York Times* Learning Network, *This*IsStatistics developed a unique exercise, titled "What's Going On in This Graph?" Spearheaded by ASA member Sharon Hessney, this partnership is modeled after the *Times's* popular series, "What's Going On in This Picture?" and is intended to inspire students to examine graphs, charts, or maps via a rich and robust supply of the *Times's* infographics.

Each month, a different *New York Times* graph will be published on a topic suitable for a variety of subjects across the curriculum. Students will then be asked to use math and statistics thinking skills to answer the following questions:

- What do you notice?
- What do you wonder?
- What's going on in this graph?

Under Hessney's leadership, an ASA team will help select graphs to use each month, moderate discussion, engage students, and provide a 'reveal' at the end of the week-long session that incorporates the graph's original title and caption and related statistical concepts and vocabulary to help students transform the data into information.

What's Next?

Stay tuned this winter and spring for ***Statistics Is for Everyone***, the latest video showcasing professionals from a variety of occupations demonstrating that everyone is connected to statistics at some point and the field can be applied to a diverse group of professions. Included in the video are the following:

- **Hillary Parker**, data scientist, Stitch Fix
- **Dawn Eash**, associate director, Berkeley Research Group
- **Dave Robinson**, data scientist, Stack Overflow
- **Alexander Oftelie**, analytics subject matter expert, IBM
- **Matthew Krachey**, data scientist, HomeAway

Statsketball returns to see who can score big and best predict the winner and brackets for March Madness. The website and social media platforms will launch as the college basketball season heats up. ■

Committee for Funded Research Calls for Grant Review Panel Volunteers

In response to a request from leadership of the National Institutes for Health (NIH) Center for Scientific Review (CSR), the ASA Committee for Funded Research (CFR) is urging the statistical community to volunteer to serve on NIH study sections. To facilitate this volunteering, the ASA has created a sign-up form at *http://bit.ly/2EL8JPe*.

"We consistently hear from NIH officials about their desire to have more statisticians on study sections and the challenges in identifying qualified statisticians, most recently by CSR Director Richard Nakamura during his presentation at JSM," said CFR Chair Ming-Wen An. "We're honored to be asked to help NIH study section officers better connect with the statistical community and are convinced better science will result."

To help first-time panelists, the committee created a guidance document, "Serving Effectively on Funding Review Panels: Advice for Statisticians New to the Process," which can be found at *http://bit.ly/2B7bh8i*.

"Just as it is important to have more statisticians with subject-area expertise on study sections, it's critical the statisticians are seen as vital and constructive study section members," said committee vice-chair Sujit Ghosh. "We hope new panelists and potential panelists will benefit from this document and the experience of their colleagues."

Richard Nakamura from the Center for Scientific Review at the NIH spoke at the 2016 Joint Statistical Meetings about the role of statisticians and how funding agencies and journals are encouraging reproducible research.

The guidance document, which benefitted greatly from input from those on the ASA Community, has the following seven sections:

1. Why serve on a panel?
2. How to be selected for a panel
3. How to prepare in advance for serving on a panel
4. I've been asked to serve on a panel, now what?
5. Points to consider when reviewing the grant
6. Points to consider when writing your critique
7. Points to consider during the discussion

The committee asks readers to share both the call and document with colleagues and urges the statistical community to volunteer to serve on National Science Foundation proposal funding panels using the guidance provided at *http://bit.ly/2DgZGJJ*. ■

Further Reading

Read the 2015 *Amstat News* article, "Funding Opportunities: Better Statistical Participation Is Needed Across Collaborative Science," written by members of the CFR at *http://magazine.amstat.org/blog/2015/12/01/funding-opportunities*.

Also read *Statistical Issues Seen in Non-Statistics Proposals*, written by the CFR to help nonstatisticians improve their funding proposals, at *ww2.amstat.org/misc/StatisticalIssuesInProposals.pdf*.

Nick Horton and Amy Herring present Tyler VanderWeele (center) with his COPSS Award plaque during the awards ceremony at the Joint Statistical Meetings in Baltimore, Maryland.

An Interview with COPSS Award Winner VanderWeele

Bhramar Mukherjee

Tyler J. VanderWeele of the Harvard T.H. Chan School of Public Health is the recipient of the 2017 COPSS Presidents' Award. The award is given annually to a young member of one of the participating societies of the Committee of Presidents of Statistical Societies (COPSS) in recognition of outstanding contributions to the statistics profession. The award citation recognized VanderWeele "for fundamental contributions to causal inference and the understanding of causal mechanisms; for profound advancement of epidemiologic theory and methods and the application of statistics throughout medical and social sciences; and for excellent service to the profession, including exceptional contributions to teaching, mentoring, and bridging many academic disciplines with statistics."

Here, Bhramar Mukherjee asks VanderWeele several questions and he responds.

What was your first reaction to winning the prestigious COPSS President's Award?

I was delighted and in a state of shock! I went upstairs and told my wife, who jumped for joy. A happy, almost mindless, daze set in. It was a Sunday afternoon, and we went on a beautiful walk with our son through Cambridge and Harvard Yard. It was a very happy afternoon and evening. As it turned out, however, I had also contracted norovirus the night before, so I will perhaps never know how much of the mindless daze was from COPSS or from … well, we won't go into the aftermath!

Which part of your job do you like the most?

It would be a toss-up between having long stretches of time to think and to write (though, sadly, these seem to come less frequently) and having such wonderful colleagues and students to work with. On the one hand, little makes me happier or more at peace than having an empty day to read, think, and scribble out mathematics or write. On the other hand, much of my deepest joy comes

from the sharing of ideas and the developing of ideas together with colleagues and students. Unfortunately, the two increasingly seem to come into conflict due to limited time! I often wish there were 36 hours in a day, rather than a mere 24.

What advice would you give to young people who are entering the profession as PhD students and assistant professors at this time?

My doctoral dissertation adviser, Jamie Robins, has always consistently said to just pursue what you love and are interested in. I think that was very good advice, and I would offer the same.

In soft money environments especially (which is what many biostatisticians at least have to deal with), it is all too easy for one's time and effort and creativity to be devoted to what is funded, rather than what is important.

I think it is essential to not confuse the means with the ends. The grants are meant to support research and the pursuit of knowledge; the pursuit of knowledge is not done for the sake of the grant! I think it is important to always be working on research questions that are significant and of interest, and not just what happens to be around. I think it is also important to block out time to read broadly, to think deeply, to ponder the structure of our discipline and its relation to others. These things are essential in the choice of research questions.

I have come to believe more and more strongly over my career that a substantial amount of time should be devoted to thinking about what is worthwhile pursuing and why. My hope is that universities and departments would do whatever they

A Little About Tyler VanderWeele

VanderWeele was born in Chicago, Illinois, and subsequently raised in San Jose, Costa Rica; Sofia, Bulgaria; and Vienna, Austria. He earned his BA in mathematics at St. John's College, University of Oxford, in 2000, as well as the requirements for a second BA in philosophy and theology. In 2002, he earned an MA in finance from the Wharton School, University of Pennsylvania, and completed his PhD in biostatistics at Harvard University in 2006. His dissertation was titled *Contributions to the Theory of Causal Directed Acyclic Graphs*.

Beginning his professional life as an assistant professor of biostatistics at The University of Chicago Department of Health Studies (now Public Health Sciences) in 2006, VanderWeele returned to Harvard University as associate professor of epidemiology in the departments of epidemiology and biostatistics in 2009. He was promoted to full professor with tenure at Harvard in 2013 and appointed the John L. Loeb and Frances Lehman Loeb Professor of Epidemiology on January 1 of this year.

His research concerns methodology for distinguishing between association and causation in observational studies and the use of statistical and counterfactual ideas to formalize and advance epidemiologic theory and methods. Within causal inference, he has made important contributions to theory and methods for mediation, interaction, and spillover effects; theory for causal directed acyclic graphs; methodologies for sensitivity analysis for unmeasured confounding; and philosophical foundations for causal inference. He has also made contributions to measurement error and misclassification, the formalization of epidemiologic concepts, and study design.

VanderWeele's empirical research spans psychiatric, perinatal, and social epidemiology; the science of happiness and flourishing; and the study of religion and health, including both religion and population health and the role of religion and spirituality in end-of-life care. In the 12 years since earning his PhD, he has published more than 250 papers in peer-reviewed journals, including 140 first- or sole-author papers in premier statistics, biomedical, and social science journals; he is author of the book *Explanation in Causal Inference: Methods for Mediation and Interaction*.

VanderWeele has served on the editorial boards of *Annals of Statistics*, *Journal of the Royal Statistical Society Series B*, *Epidemiology*, *American Journal of Epidemiology*, and *Sociological Methods and Research*. He is co-founder and editor-in-chief of the journal *Epidemiologic Methods*. He also serves as co-director of the Initiative on Health, Religion, and Spirituality; faculty affiliate of the Harvard Institute for Quantitative Social Science; and director of the Program on Integrative Knowledge and Human Flourishing at Harvard.

In addition to being the recipient of the 2017 COPSS Presidents' Award, VanderWeele was the recipient of the 2013 Bradford Hill Memorial Lecture, the 2014 Mortimer Spiegelman Award, the 2015 Causality in Statistics Education Award, and the 2017 John Snow Award.

He lives in Cambridge, Massachusetts, with his wife, Elisabeth, and their son, Jonathan.

I think statistics as a discipline is underappreciated in the university. It really provides the methodological foundation for so many other disciplines.

can to provide protected time for junior faculty—and all faculty—to engage in deep reflective thought about important questions, whether those topics are funded or not.

Who are your most significant mentors? How did/do they affect your career?

I have had a number of wonderful mentors throughout life, academically and more broadly, as well. I am very grateful to them. Starting in college, Charles Batty, who was my analysis tutor in mathematics at St. John's College, Oxford, was an important mentor in encouraging careful rigorous thought and probing the boundaries of concepts. Also at Oxford, my philosophy tutor, Peter Hacker, an expert on Wittgenstein, taught me a great deal about the philosophy of language and about the drawing of distinctions between concepts and paying careful attention to how language is used. Believe it or not, that mentoring has been of tremendous value in trying to mathematically formalize and make more rigorous various epidemiologic concepts.

At Harvard, Jamie Robins was my doctoral dissertation adviser. He was a wonderful guide in my carrying out my first original methodological research projects, and he has constantly challenged me to think clearly and deeply about ideas and concepts and to focus on what seems most central and important. I have had many other important mentors throughout the years, but in terms of my work in statistics, biostatistics, and epidemiology, these would be the most important.

Why were you drawn to causal inference?

Before I began studies in biostatistics, I was actually in a doctoral program in finance. We would fit regression models, and then we would seem to interpret all the regression coefficients the same way, often with some vague notion that the interpretation might be causal. It made me very uncomfortable. I felt we were not really justified in interpreting the regression coefficient as we did, but I also felt I lacked the technical vocabulary to express my concerns. After a while, I decided to leave finance and took a course in epidemiology and came across the concept of "confounding" and realized immediately that that was the concept I had wanted to employ in my critique of what we had been doing in empirical finance.

The next semester, I began doctoral studies in biostatistics at Harvard and my very first semester there, I took a course with Donald Rubin on causal inference and was introduced to the potential outcomes notation. I immediately saw then the concept of confounding could be mathematically formalized by using such potential outcomes notation. I knew at that point I wanted to pursue causal inference.

The next year, I took another more advanced course on causal inference with Jamie Robins at the Harvard School of Public Health and was introduced to causal inference with time-varying exposures, causal diagrams, and questions of mediation, which have subsequently become some of the topics of my own methodological research, much of which is summarized in my book *Explanation in Causal Inference: Methods for Mediation and Interaction*. I think having a formal framework to distinguish between association and causation is central. It is extremely important in the biomedical and social sciences. It is helpful, but perhaps not absolutely essential, when we are talking about the effects of a single exposure since, in that case, many of our intuitions and traditions that have been built up over the years work reasonably well. However, once we come to more nuanced inquiries concerning exposures that vary over time, questions of mediation and mechanisms, or how we think about the causal effects on some secondary outcome in the presence of death that may precede our outcome measurement, it becomes extremely difficult to make progress in thinking about causality without a more formal framework. Counterfactuals and the potential outcomes model provide the necessary framework. The framework's capacity to clarify and evaluate assumptions and to provide much more precise and nuanced interpretation to our estimands is extraordinary.

A lot of work, however, still needs to be done in making these approaches standard practice in empirical research. For example, methods for sensitivity analysis for unmeasured confounding have been around for decades, but are still rarely used in practice. In thinking about how to encourage broader use, I introduced a new metric called the *E-value* to assess the robustness of associations to potential unmeasured confounding (essentially related to the *evidence* for causality) in a paper in the *Annals of Internal Medicine.* I hope this will help standardize and promote the use of sensitivity analysis throughout the biomedical and social sciences. The formal work in causal inference using counterfactuals has constituted massive advance in our capacity to reason about causality, and in understanding our limits in being able to do so. It has been a joy to be able to contribute to this important field.

Anything else you would like to share about our profession?

I think statistics as a discipline is underappreciated in the university. It really provides the methodological foundation for so many other disciplines. It is often interesting to go down the list of departments in a university and think about how many of them use regression models, for example.

Statistics has become one of academia's major epistemologies, one of the ways we come to knowledge. I think it needs to be better acknowledged as such throughout the university.

At the same time, I think the use of statistics is often not adequately scrutinized. In many disciplines, and even in statistics itself, we will often blindly accept the interpretation of some analysis without thinking critically about the interpretation, degrees of evidence, and assumptions that underlie the conclusions.

The field of causal inference is, of course, helpful in this regard. But I think the concerns are even broader. How do our statistical analyses relate to the pursuit of knowledge? When are we willing as a community to say we know something on the grounds of statistical analyses? When is it the case that the evidence is such that it seems impossible it will be overturned? The much discussed of late "replication crisis" has, I think, helped bring these issues up quite dramatically. And they are important issues and ones we should take seriously.

I also think it is possible that we sometimes overuse and over-rely upon statistics. I am sometimes surprised how, in some papers, a policy conclusion is thought to immediately follow from a particular statistical analysis, when a number of ethical and value-related questions must also go into decision-making. Because statistical analyses are quantitative, they seem more objective, and we have perhaps become too weak at other forms of ethical and practical reasoning so we, at times at least, I think perhaps over-rely on statistics in our thinking. In my view, statistics is, as a discipline, thus paradoxically under-appreciated, over-utilized, and under-scrutinized. I think additional reflection and also education in the broader academic community on how statistical analyses are ultimately related to knowledge would help increase the appreciation of our discipline and also lead to better and more appropriate interpretation. I hope to spend a fair bit of time thinking further about this task in the years ahead and hope other statisticians will do the same.

Finally, what are your hobbies/interests beyond statistics?

I very much enjoy classical music and playing the piano, and I try to attend concerts whenever possible, though that has become a little less frequent with a 2-year-old. More and more time has been devoted to my family life, which I have thoroughly enjoyed! I enjoy food and wine … perhaps too much! And I also very much enjoy tennis and, in times past (and hopefully future), skiing.

I've been fairly involved in various church communities throughout my life, and this has been an important part of the way I think about and understand the world. More recently, this has also been part of my academic work with empirical studies on religion and health. I still very much enjoy having opportunities to read more in philosophy and theology and some of my more recent work has also been thinking about how ideas in philosophy and theology might inform empirical statistical research in the social and biomedical sciences and vice versa … but now I am talking about work once again. Probably more balance on other interests, hobbies, family, and friends would be good! ■

Five Lessons Learned Implementing a School Drought Survey in Somalia

Monica Dashen

Monica Dashen, who retired early from the federal government, recently worked on a Somali civil worker gender survey. Contact her at *Marielee43@gmail.com* if you have questions or would like to know more.

Somalia is experiencing a drought that has affected the educational system, leading to high dropout rates among children, a low number of teachers, and school closures. Data are needed to track the effects of the drought on school-aged children and help foreign aid workers coordinate food supplies.

To fill this gap, a Somali official and I constructed a school drought survey whereby school officials will be asked to report the number of school closings, student absences, meals delivered, and educational supplies received. We also drafted a supplementary survey involving parents of school-aged children to confirm the school officials' reports. Parents will be asked about their children's health and dietary habits, school status, and aid received.

When designing and implementing a survey in a crisis situation, a survey methodologist may find standard tasks to be more challenging (particularly in developing countries). For example, trained and experienced interviewers may not be readily available at the time of implementation, and the methodologist will have to take time to train a group of novice interviewers and vet their English-speaking skills. To obtain an interviewer job, for example, candidates may say they speak and understand English better than they actually do. Here are five lessons I learned while trying to implement a school drought survey:

1 Asking foundational questions about sanitation is important.

A survey designer should not limit questions to aid distribution, student enrollment, and school status. Instead, the designer must paint a broader picture of the crisis and ask about the school toilets and water source functionality. Unclean water is often the source of cholera and other diseases. In Somalia, the drought may eliminate clean water sources and force people to drink unclean water.

Likewise, sanitation habits and bleach availability are important topics to assess. For instance, in rural areas, cholera is difficult to treat, as it requires truckloads of intravenous (IV) fluid for those patients who suffer from severe dehydration. Rural clinics simply do not have a ready supply of IV fluid for a large number of patients. Also, the roads leading to these clinics are in poor condition, thereby limiting access to large trucks. Such roads and distances make prevention all the more critical, and clean water and good sanitation habits are preventative methods.

The US Centers for Disease Control and Prevention recommends bleach—a water treatment—be available in every village, as bleach is easy and cheap to produce in any country. (In many American homes, water is chlorinated at the source and does not need to be purified at the tap.)

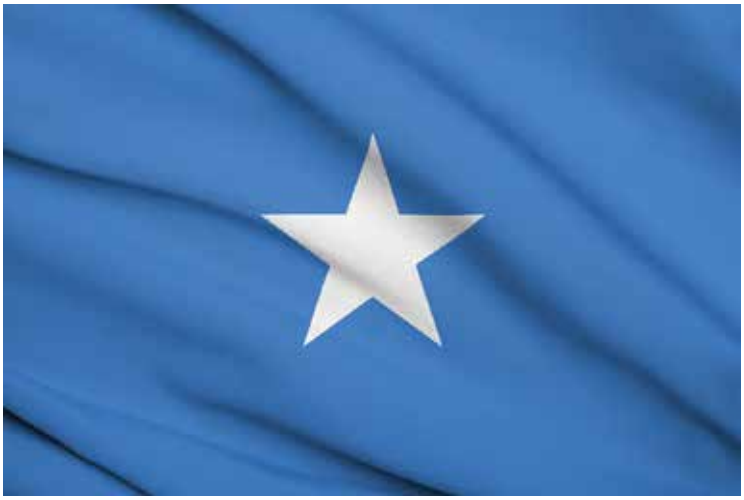
2 Asking gender-specific questions is important.

The survey designer should ask about the number of boys and girls enrolled by grade level. In Somalia, boys, who are viewed as "future bread winners," are encouraged to pursue their education more so than girls. Typically, more boys attend secondary school than girls. To encourage more Somali girls to attend school, an NGO recommends providing scholarships, solar lanterns for night time studying, sanitary kits, job-training skills, and a greater number of female instructors. A survey designer may consider inquiring about incentives used to keep the children (particularly girls) in school during the drought.

The survey designer may also want to collect data on the number of single-gender toilets per school. Not only are toilets a sanitation issue, but toilets are a school enrollment issue, too. Girls drop out of school due to the lack of single-sex toilets. Some girls have experienced violent attacks in a mixed-gender bathroom. When an NGO or government official installs a single-gender bathroom in a school, for example, the teachers may use it for themselves while the girls continue using the unisex bathroom.

Designing the questionnaire can be trickier than expected.

3 The designer may find some questions to be seemly straight forward to draft, but require multiple rewrites. The "change in dietary habits after a crisis" question is one such example. Asking about the number of meals eaten per day, or whether one has eaten enough, is ineffective. Rather, the type of food eaten and how it differs after the drought is key, along with where the food was obtained. The designer should find out whether the food is home-grown, donated, or store-bought. Likewise, the designer may find it difficult to ask people about their job and income. For example, farmers who are unable to grow food may still report working after a disaster. Once a farmer, always a farmer.



Obtaining a detailed map of drought-affected areas is difficult.

4 Unlike a hurricane that strikes in a clear location, the Somali drought is gradually spreading throughout the country. Some areas are more affected than others. To the best of my knowledge, detailed maps depicting the drought severity of villages or towns are difficult to obtain or nonexistent. As a result, the team and I had to rely on the villagers to tell us about the severity of the drought. Interestingly, simply asking the people about the last time it rained did not provide a full picture of the drought. Instead, we asked people to describe the (1) rate of rain fall—sheets or drizzle, (2) soil moisture, and (3) last time it rained. Another way involves physically analyzing the ground water.

Implementing a survey has security risks.

5 Having a security guard accompany the team in the field is prudent after any disaster. That is, the act of asking people about aid after a disaster and how they are doing can enrage them, particularly if they are hungry and homeless. Likewise, a methodologist should be present at the time of implementation to make sure the interviewers follow proper survey protocol. With the political unrest in certain areas of Somalia and lingering anti-American sentiment, it is difficult for a non-Somali like me to be present at implementation. For example, the team's visits to schools around Mogadishu would require an SUV, security team of three persons, guide, and driver, so it was unclear whether the interviewers and I would find a seat in this SUV.

To extend our reach outside of Mogadishu and the state capitals, the team and I could conduct a phone survey of school officials listed in the national registry. Somalia has about 50% phone coverage, and people don't have to pay to receive a phone call. However, our reach would be limited for three reasons. First, phone coverage is lower in rural areas than urban. Second, people do not always keep their phones "on" so as to save power. And third, people sometimes do not have the money to pay their phone bills. Providing phones along with phone credit to survey participants is a "work around" practiced by other researchers, but it comes with its own problems (e.g., the participants sell their phones for cash).

To determine where in Somalia the team and I could go with a reduced security risk, I looked at what other researchers did. I learned we could simply go to Somaliland, an autonomous region to the north of Mogadishu. This region has been fairly stable and even has its own currency. There is also a World Health Organization contact there**.** A census pre-count was done in this region, along with work on mobile money usage, reasons for piracy, and opinions toward the new government. Still, security precautions are needed, given the drought. ■

Plans in the Works for Second Seasonal Adjustment Practitioner's Workshop

Brian Monsell, US Census Bureau

The first Seasonal Adjustment Practitioner's Workshop was held in Washington, DC, at the Bureau of Labor Statistics Janet Norwood Conference and Training Center in the fall of 2016. Planning is now underway to hold another in 2018.

The next workshop will be held April 26, again at the Bureau of Labor Statistics Janet Norwood Conference and Training Center. A registration site for the event has been created at *http://bit.ly/2Dn12BQ*.

Key Dates

Abstracts Due: March 1

Registration Closes: April 20

The morning will begin with a keynote speaker with discussants. Abstracts are being accepted at *esmd.seasonal.workshop@census.gov* for morning and afternoon contributed sessions. Papers may cover any subject relating to seasonal adjustment methodology or the process of seasonally adjusting series at a statistical agency; however, there is an interest in talks that do the following:

- Share experiences in producing seasonal adjustments
- Give details of interesting problems and possible solutions
- Discuss best practices in seasonal adjustment, trend estimation, and time series modeling
- Share lessons learned, tips, and shortcuts
- Present applied research in seasonal adjustment practice

Abstracts should be fewer than 100 words in length for a presentation of about 15–20 minutes. There is no charge for participation.

The conference organizers are committed to making the workshop a development opportunity for newer employees with seasonal adjustment responsibilities, as well as those who are more experienced. ■

Save the Date: SRCOS Conference

The Southern Regional Council on Statistics (SRCOS) Conference will take place June 3–6 in Virginia Beach, Virginia.

Organized by SRCOS and Old Dominion University, the conference addresses problems in statistical applications. The conference includes speakers, workshops, and student poster presentations.

Students are encouraged to participate, and there is support available for student travel. The deadline to request student travel support is April 10. Details about the conference can be found at *www.odu.edu/math/srcos*.

Questions may be sent to Norou Diawara at *NDiawara@odu.edu*.

How to Run MSDOS Statistical Software in Windows: An Important Blast from the Past

Jonathan Shuster, Professor Emeritus, University of Florida

When Windows dropped its support of 16-bit and 32-bit MSDOS programs in favor of 64-bit programs, a considerable amount of useful statistical software was lost, seemingly forever. Fortunately, there is a free software program, DOSBox, that allows a user to emulate the right architecture to run these. These are useful interactive programs written and verified over dozens of real applications and widely used by others in the past. Here is how to obtain and run my four programs:

You can get the links below electronically by visiting *http://bit.ly/2DEyDF0*.

- Download free copies of one or more of these programs from:

  BINOMIAL.EXE: *http://bit.ly/2B5mWEA*

  CONF.EXE: *http://bit.ly/2B7zWcW*

  CRCSSIZ.EXE: *http://bit.ly/2DEgTKe*

  XACTB.EXE: *http://bit.ly/2rcVqFA*

- These are (a) XACTB.exe (Barnard's exact unconditional test for comparing two independent binomial proportions—much more powerful than Fisher's Exact Conditional Test). Output also includes Fisher's Exact Test, (b) CONF.exe (exact one- and two-sided confidence intervals for binomial proportions), (c) BINOMIAL.exe (exact cumulative distributions for hypergeometric and binomial data), and (d) CRCSSIZ.exe (Sample size calculations for clinical trials of survival via the logrank test per my text *Sample Size Guidelines for Clinical Trials*. It invokes the template from Page 7. This allows for losses to follow-up and a common average hazard reduction factor to both arms after the endpoint is reached {can be 1.0 for exponential survival}). Save these files to a useful location with file extension .exe to say: C:\users\public

- Download a free copy of DOSBox from *https://sourceforge.net/projects/dosbox*.

You can run the program as follows (illustrated with XACTB):

1. Double click on DOSBox (ICON on your desktop after the download)
2. Mount C C:\users\public (Type this, then enter)
3. C:\xactb (Type this, then enter)

It will self-prompt. Answer 0 to the first two questions (maximize over full range of probabilities and no continuity correction).

Note that once the program has completed its operation, *you can run it again by simply using the UP- ARROW and then enter.*

These programs are user friendly. For questions, email Jonathan Shuster at *shusterj@ufl.edu*. ■

KNOW OF ANY **LATE-BREAKING** DEVELOPMENTS?

PLEASE SHARE!

JSM Late-Breaking Proposals Due April 16

Christian Léger, JSM 2018 Program Chair

Are you tired of winter? I invite you to think about summer. Vancouver. The 2018 Joint Statistical Meetings! The 181 invited sessions have been scheduled and, in the next few weeks, we will organize the contributed abstracts into sessions. When you consult the online program, I am sure you will find exciting sessions to attend from Sunday afternoon through Thursday morning and you will want to join us to "#LeadWithStatistics" at JSM 2018.

Preparing such a big program requires much advanced planning, so the invited session proposal deadline is in early September. Of course, much can happen in the ensuing 11 months, which is why there is a call for proposals for late-breaking sessions. A late-breaking session must cover one or more technical, scientific, or policy-related topics that have arisen during the one-year period prior to JSM.

To give you an idea of the type of sessions that have been selected in the recent past, here is a handful of late-breaking session titles:

- National Governments, Coerced Narratives, Creative Language, and Alternative Facts
- Hindsight Is 20/20 and for 2020: Lessons from 2016 Elections
- Invest in What Works: First Steps Toward Establishing Evidence-Based Policymaking Clearinghouse
- Data Journalism and Statistical Expertise: An Urgent Need for Writers, Bloggers, and Journalists to Be Statistically Savvy
- The VA Secretary Bans a Statistics Book
- Meeting the Challenges of a Pandemic: The Statistical Aspects of Dealing with Ebola
- Statistical Science and the President's BRAIN Initiative
- Recent Concerns About Reproducibility and Replicability: The Statistical Aspects

Proposals for late-breaking sessions should be emailed to JSM 2018 program chair, Christian Léger, at *leger@dms.umontreal.ca* with a copy to the ASA meetings department at *meetings@amstat.org* by April 16. The competition is open to any member or organization of a partner society.

A late-breaking session must cover one or more technical, scientific, or policy-related topics that have arisen during the one-year period prior to JSM.

Proposals will be judged on statistical and scientific quality, timeliness, significance and impact, potential audience appeal, and completeness. Up to two late-breaking sessions will be selected from the proposals received by the deadline (subject to approval by the ASA Committee on Meetings). The proposal must include the following:

Léger

- Session description—including a title, summary of statistical and scientific content, and explanation of the subject's timeliness and significance—and comments about the intended target audience
- Format of the session (e.g., a chair and four panelists, 2–3 speakers and a discussant, etc.)
- Names, affiliations, and contact information for the session organizer, chair, and all participants (speakers, panelists, discussants)
- A title for each presentation in the session
- Web links to relevant technical reports or news reports, if applicable

Organizers should make sure the participants agree to participate before the proposal is submitted. The JSM participation guidelines state that a speaker can give a main presentation and participate in a late-breaking session at the same meeting, so previous commitment to a regular session does not preclude participation.

We look forward to reading your proposals! ■

STAT*tr@k*

Advocating for Statistics: How You Can Help Our Profession

Steve Pierson, ASA Director of Science Policy

Steve Pierson earned his PhD in physics from the University of Minnesota. He spent eight years in the physics department of Worcester Polytechnic Institute and later became head of government relations at the American Physical Society before joining the ASA as director of science policy.

Statistics has had a good decade in many ways, thanks in part to big data, the emergence of data science, and concerns about reproducible research. The number of bachelor's degrees awarded in statistics annually has tripled since 2010, and master's degrees in statistics and biostatistics have doubled. *US News and World Report* and others have routinely ranked statistician or biostatistician as a top job. Similarly, *Forbes* has rated statistics and biostatistics master's degrees at the top of their jobs lists.

The ASA *p*-value statement (*http://bit.ly/2mkS0Lp*) has been viewed an astounding 230,000 times since its release in 2016. And the article "Ten Simple Rules for Effective Statistical Practice" (*http://bit.ly/28qIYOJ*) has been viewed 210,000 times since its release the same year. The *This*IsStatistics YouTube video *Why You Need to Study Statistics* (*http://bit.ly/2mDPArg*) has been viewed 111,000 times. Finally, the AP Statistics exam was taken by 216,000 students in 2017, making it one of the top four STEM AP exams.

On the other hand, the statistics discipline remains a small community compared to disciplines such as mathematics, computer science (CS), and physics. The total number of bachelor's degrees granted in statistics in 2016, 2,800, is still smaller than just the *increase* in mathematics degrees, which went up 4,819 from its 2010 level to 20,665 in 2016. CS bachelor's degrees in that period increased 11,636 to 26,332 in 2016, partially due to a recovery after the dot com bubble burst. Similarly, statisticians tend to be far outnumbered in academia, government, and business. I'm sure many of you could share stories of not enough people—including policymakers—understanding what statistics is and what statisticians bring to the table.

In short, there has been progress, but much work remains. Just as recent progress is due to many in the statistical community, further progress requires increased engagement by our community. Below are some ideas to advocate for statistics, and I look forward to your ideas.

I think the most effective way to increase advocacy for statistics is for more of you to be involved in activities that include nonstatisticians, so more people are personally acquainted with a statistician. Through increased individual outreach, more people would learn what statisticians do and what statistics is, which is the foundation of advocating for our profession. This involvement could take many forms, including the following:

Interdisciplinary Research

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

Volunteering

Offering your expertise as a statistician is a great way to demonstrate to nonstatisticians how statistics can help them. Some ways to get involved include Statistics without Borders (*http://community.amstat.org/statisticswithoutborders/home*), On-call Scientists (*http://oncallscientists.aaas.org/default.aspx*), DataKind (*www.datakind.org*), and Statistics in the Community (STATCOM) (*ww2.amstat.org/education/statcom*).

Fellowships

There are many fellowships that place scientists in organizations so they benefit from scientific thinking. Prominent examples include the AAAS Science and Technology Policy Fellowships and the Robert Wood Johnson Foundation Health Policy Fellowship. The ASA also established the science policy fellowship, for which the fellow spends

1–2 years advocating for our profession and for which we are currently advertising (*ww2.amstat.org/policy/fellowship.cfm*). The ASA is also a new sponsor of the AAAS Mass Media Fellowship (*http://bit.ly/2Dh5QcW*) that places students with a media outlet for 10 weeks.

Writing

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

Social Media

As in the other categories, there are many examples of statisticians successfully networking with non-statisticians through social media.

Data Meetups/Hackathons

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

Community Involvement/Service

Get involved in your community, whether judging at a science fair, making schools aware of the *This*IsStatistics campaign and Statistical Significance, running for the school board, or weighing in on school curricula.

Engage with the ASA

Be part of the ASA's advocacy work! This can take many forms, including making sure we are aware of new developments, urging the ASA to speak up on an issue, sharing your views with us, or volunteering to serve on the ASA Scientific and Public Affairs Committee or an ad-hoc group addressing an issue.

Monitoring Policy Discussions

There are few policy discussions without a statistical component. Follow those discussions and monitor for sound statistical thinking. The release of the final report of the Commission for Evidence-Based Policymaking (*www.cep.gov/cep-final-report.html*) seems to have increased the attention and desire for evidence-based policymaking, providing a natural opening for our community. If you identify an opening for sound statistical thinking, make it known using any of the options suggested here.

Hear the ASA's first Science Policy Fellow, Amy Nussbaum, talk about her fellowship experience: *http://bit.ly/2DDSnZC*.

MORE ONLINE
Visit the ASA's Science Policy and Advocacy page for resources and information: *http://bit.ly/2dyj5Y9*.

Communicate with Your Elected Officials

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

In short, the most important people for advocating for statistics are you all. The statistical community knows well the many invaluable contributions of statisticians to science, policy, business, and society, but it's up to us to make others aware. The ASA, of course, has many programs—including science policy—whose goal is advocacy for statistics. If you have comments about these activities or ideas for others, contact me at *pierson@amstat.org*. ■

STATS4GOOD

Data for Good—On the Job!

With a PhD in statistical astrophysics, **David Corliss** works in analytics architecture at Ford Motor Company while continuing astrophysics research on the side. He serves on the steering committee for the Conference on Statistical Practice and is president-elect of the Detroit Chapter. He is the founder of Peace-Work, a volunteer cooperative of statisticians and data scientists providing analytic support for charitable groups and applying statistical methods to issue-driven advocacy in poverty, education, and social justice.

This column is written for those interested in learning about the world of Data for Good, where statistical analysis is dedicated to good causes that benefit our lives, our communities, and our world. If you would like to know more or have ideas for articles, contact David Corliss at davidjcorliss@peace-work.org.

As we explore different opportunities for Data for Good (D4G) projects, it is important to mention one avenue becoming more widespread today: statistical volunteering through work. Companies often encourage employees to volunteer in the community where they work, with many offering time off for teams or individuals volunteering for local organizations.

Common projects include cleaning up parks, volunteering at a school for a day, working in community food banks, and participating in construction projects for Habitat for Humanity. While supported by the employers, which provide critical infrastructure and logistics, individual projects are usually proposed and led by individual employees. This makes Data for Good a project many of us can consider for the next team-building service project where we work.

Often, employee-led community service projects in D4G can spring from existing activities with favorite charities at your company. The membership and volunteer study for a local Habitat for Humanity group described in the November issue (see *http://magazine.amstat.org/blog/2017/11/01/serving-your-community*) started when two work colleagues, one of them a statistician, volunteered for the same organization. Likewise, the food pantry where you volunteer now might need a seasonal analysis. Science fairs need judges who understand statistics. The school partnering with your company might benefit from a data dive to better understand their changing demographics and forecast changes.

Many companies engaged in data science and technology have sponsored projects in which groups of employees apply the same skills they use on the job to support important causes on a pro bono basis. Well-known employers supporting statistical volunteering include Cloudera, which recently sponsored a hackathon to compile data on the spread of the Zika virus. Also, DataKind has partnered with Teradata, Pivotal, Informatica, and others. The number of companies supporting the D4G movement with volunteer opportunities continues to grow.

Company volunteer programs usually have a particular set of ground rules. Projects and the organizations receiving support should be approved through the HR department or, in the case of smaller companies, the operations lead. Projects must not interfere with or delay regular work for company customers. Companies will often choose the cause they want to support, and then seek employees to volunteer, generally preferring activities that support important needs in the community. As the company will want to let others know about the good they are doing, communication with HR or operations, an employee newsletter, and even the outside press might be a requirement. Employee volunteer projects often serve as team-building activities, so it's a good chance several co-workers will be involved. Many companies will give a limited, specified amount of time off for volunteering through work, often one day a year or sometimes two. As the company is performing the work as a charitable activity, careful documentation is needed for tax purposes. This is usually done by a team captain who submits a request for an employee volunteer activity, helps recruit volunteers, records attendance in hours for each participating employee, and reports to HR or operations about how everything went.

Thinkstock photo

One advantage of volunteering through work is the company often makes available analytic resources and software volunteers use every day. The familiar analytic environment at work usually becomes the platform for pro bono projects, as well, maximizing the efficiency and effectiveness of statistical volunteering.

Microsoft's MySkills4Africa is an excellent example of a D4G program created by a large tech corporation relying on employee volunteers. Established in 2013, MySkills4Africa offers Microsoft employees from around the world the opportunity to develop practical and affordable technology in developing African nations. The Microsoft program partners with governments, NGOs, commercial enterprises, and schools and universities.

Characteristic of MySkills4Africa projects is the opportunity to use advanced skills normally applied only at work in service to others on a volunteer basis. Many MySkills4Africa projects involve longer-term consulting projects in which volunteers work virtually with African. Microsoft also sponsors 1–2-week hands-on projects in Africa.

Opportunities

With the start of a new year, this month's Data for Good opportunities include many organizations looking for people to start new projects. Kaggle would like volunteers to host Data for Good events; visit *www.kaggle.com/data-science-for-good/overview*. Also in February, the ASA's Conference on Statistical Practice is featuring several D4G papers, and I'll be leading a data dive on hate speech in social media. Hope to see you there!

One project developed a team of subject matter experts to partner with the Rwanda Ministry of Education. Months of preparation—all done as volunteers in addition to work—culminated in a two-week trip to Rwanda to train professionals and small business owners in emerging technologies. At the same time, the employee team worked with Rwanda education officials to establish an ongoing program so they could continue the good work.

Employee volunteering is supported by many companies, but not all have started projects using analytics and data science. If there are not volunteer opportunities on the Data for Good projects where you work, contacting someone in your HR department might be a good place to start.

All these opportunities and many more share a quality commonly found in Data for Good projects: An organization has data about its activities and the people it supports, but doesn't have—and can't afford—the statistical expertise needed to make their important work in the community even more effective. At the same time, companies both small and large are looking for opportunities to build team spirit by working together on projects that benefit the community. D4G projects through work are a perfect opportunity to use the science we love to make a difference in our communities and around the world. I would love to hear about the D4G projects you have done through work. ■

PASTIMES OF STATISTICIANS

What Does Kathleen Turczyn Like to Do When She Is Not Being a Statistician?

Kathleen Turczyn with her painting, "Lucy's Grandmother," oil on canvas

Painting by Turczyn, "Belle the Cow," oil on canvas

Who are you, and what is your statistics position?

My name is Kat Turczyn. I retired from the National Center for Health Statistics 11 years ago (Wow, does time fly!). And I thought I was old when I retired …

During the last half of my employment as a statistician, I worked with the Healthy People Initiative, a program that provides science-based, every-10-year national objectives for improving the health of all Americans. It is now in its third decade and has established benchmarks and monitored progress over time to do the following:

- Encourage collaborations across communities and sectors
- Empower individuals to make informed health decisions
- Measure the impact of public health disease-prevention activities

Throughout my career, I learned a considerable amount about many areas of the health promotion and disease prevention field and worked with numerous wonderful, dedicated people in a wide variety of health agencies and organizations—public and private. I found my work endlessly exciting and challenging, and gained a tremendous appreciation for the art and science of statistics.

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

I now have a painting studio (Kat's Flat Art) and paint to my heart's content in a small Western North Carolina mountain town.

What? A 180-degree leap from using my left brain to my right brain? I get asked this question a lot. It actually wasn't so much of a leap as one might expect. Both disciplines require analytical skills. I went from analyzing data to analyzing color, value (light/shadow), texture, placement of shapes, and composition of two-dimensional art. I can spend a

Turczyn gives her view of the South Toe River as fall sets in.

whole lot of time analyzing my next brush stroke, and then get it "wrong," and then re-assess again and again. Other times, the paint just flows.

Painting has set me free to express myself in a way I never knew was possible. Probably because I haven't been professionally trained (aside from a bunch of great painting workshops from very generous, talented painters), I paint in all sorts of styles, use lots of paint applicators (brushes, palette knives, rags, old credit cards, fingers, etc.), and choose many subjects. I don't usually paint the same subject twice, because I find that my enthusiasm is diminished if the challenge of the original has passed, and this lack of enthusiasm shows in the final product.

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

After I retired in 2006, I knew I'd be painting. Over my statistical career, I'd been asked to design announcements and invitations to office celebrations (especially before personal computers) and to create temporary wall art for offices, hallways, conference rooms, and—occasionally—our auditorium.

I began by painting portraits in pastels, mainly as a personal challenge. After the 6th portrait, I started asking for compensation for the commissions I received. My husband, Mark, and I moved to the mountains of Western North Carolina in 2009; in 2010, I joined a group of painters who gathered on Wednesdays to not only paint, but share their vast painting knowledge. I saw a great opportunity in this Sandra Gates' Wednesday Painters group, bought some oil paints and brushes, and jumped in. I haven't looked back.

Little is off my to-paint list or my how-to-paint list. Almost everything is a challenge, and I rarely live up to my own standards. But this passion gets me up in the morning, and I am thrilled and infinitely grateful to be able to express my creativity in this way.

I was recently honored when *The Laurel of Asheville* magazine featured one of my winter paintings on the cover (see *http://bit.ly/2CS8Ms8*). You can never tell when something wonderful is going to fall into your lap. What a grand life! ■

MASTER'S NOTEBOOK

My Journey from There to Here … Another Way to Get to 'Master Statistician'

Wayne G. Fischer

Wayne G. Fischer is a statistician at the University of Texas Medical Branch. He provides direct support for the analysis of operations, clinical outcomes, and research data to meet the health system objectives/improvement priorities and develops predictive models.

I don't have a degree in statistics, and I don't play a statistician on TV. But, my accumulated knowledge and experience have qualified me to hold a position titled "statistician" at the University of Texas Medical Branch. (My degrees are in chemical engineering.)

It took me three courses over three years at the University of Cincinnati to realize applied statistics could have great potential in my career.

In graduate school at Purdue, one of the chemical engineering professors taught "Design of Experiments and Regression Modeling." The lectures, homework, and tests were all oriented toward chemical engineering problems. Bingo! I got it. I resolved to never stop learning all I could about applied industrial statistics.

My first job out of graduate school was with Rohm and Haas Company, in Philadelphia, in its R&D Research Computing Group. The first statistical issue I tackled: How much better was the second generation of a key catalyst than the one currently used commercially? I did a two-sample *t*-test comparing the average conversion—and average selectivity—to the key product. Oops, can't reject the null! I wrote the memo explaining the analysis and its conclusions. The project leader was in my office the next morning.

Fortunately, he calmly listened to my recommendation. I showed him plots of the individual measurements of conversion and selectivity of the two catalysts and pointed out there was so much variation in each set of data (the "noise") that we couldn't say with any confidence that the differences were not due to sampling, even though the averages were numerically different (the "signal"). I got with the chemist running the experiments, and then we went through each step of the process, made changes that reduced common cause variation (the noise), and reran both catalysts. Now the *t*-test conclusively showed the second-generation catalyst was better.

It was clear to me that this "ailment" (too much noise-hiding signals) probably ran through much of our experiments—bench scale and pilot plant. Plus, all experiments were conducted using OFAT: One Factor at a Time. R&D had a huge opportunity to dramatically improve both the effectiveness and efficiency of its experimentation.

That opportunity presented itself when I came across Stu Hunter's video lecture series, *Design and Analysis of Experiments*—with work texts! (This was 1975, after all.) I prevailed upon our project leader to rent the series and buy the work texts; five of us took the course. I agitated to retain Stu Hunter as our consultant. Management agreed, and Stu started making monthly one-day visits. His approach was effective. He consulted with each of us about the projects we were working on, taught us what we needed to know right then, and left us with references to what we should learn next. By 1977, we had developed an interactive computer program, called "Analyzer," for the design and analysis of full and fractional factorial experiments—the first ever, I believe.

We integrated Analyzer with a three-day, in-house short course we designed and delivered (with Stu) to chemists and engineers. (I continued to make a nuisance of myself by preaching that all R&D experiments should be conducted this way—be the norm rather than the exception—and any exceptions should be justified. Six months after I left Rohm and Haas, the vice president of R&D promulgated a requirement for promotion on the technical ladder was demonstrating at least one use of a designed experiment.)

I continued learning about, applying, and teaching applied industrial statistics through my seven years at ARCO Chemical R&D, 5½ years at Mobil Chemical R&D (where I gave 50-minute biweekly seminars), and six years in Mobil's Olefins & Aromatics Business Group. I inculcated the use of statistical process control (SPC) in R&D's labs and pilot plant. In the Business Group, I got to apply SPC in marketing and sales, supply and distribution, manufacturing, and even in human resources!

I made my career change in July 2000 by joining the University of Texas MD Anderson Cancer Center's (UTMDACC) Performance Improvement Department. As a chemical engineer with 24 years' experience in industry—and none in health care—I wasn't sure why they hired me (even though the job description read like a summary of my résumé). But their leadership knew why, and after about six months, I said to myself, "OMG, do they need what I have!"

Back then, my kind of experience in the concepts, principles, and methods of continual improvement, data analysis, modeling, simulation, and optimization was a rarity in health care. At UTMDACC, I taught and applied SPC throughout the organization and was able to apply Monte Carlo simulation, linear programming, and multivariate linear regression.

In May 2011, I transferred to the University of Texas Medical Branch in Galveston as a "statistician." (By now, I thought of myself as a "statistical engineer.") I still work across the organization: faculty, residents, fellows, nurses, medical students, support staff, and administrators.

What are my life lessons after 45 years of applying, consulting, and teaching applied statistics—first in industry and then in health care?

- **Never stop learning.** Not only just-in-time (as project needs dictate), but "ahead-of-time"—what I call "anticipatory learning." As you become familiar with your organization's processes and needs, try to discern what will be needed next that you don't yet know anything about.
- **Speak the local language.** Because I was an engineer trying to learn statistics, I knew firsthand the barriers of "speaking statistics," instead of speaking about solving the problem in terms of the needs of the client. I became good at this because, starting out as an engineer, I could present the statistical methods in the "language" of the other engineers and chemists in R&D. I carried that skill into health care.
- **Become known for one thing.** At least one thing. While at Mobil Chemical R&D, I resolved to implement SPC everywhere I saw it was needed. When I was transferred to the Business Group, the head of R&D lamented, "Who will support our use of SPC?" Having a strong and well-known expertise in a specific area gives you credibility and serves as an "entry point" for demonstrating your other skills and knowledge.
- **Volunteer with professional societies.** Start with the local chapters, giving presentations. Then, when you've assessed the lay of the land, take on the responsibilities of an officer. Volunteer to facilitate sessions at national conferences, to chair and organize sessions, and to present your work. I found this approach motivated me to really know my subject matter, to build my professional network quickly (and widely), and—later in my career—to identify mentoring opportunities. (I use LinkedIn to learn, share my knowledge, and mentor others.) And it develops your leadership skills.
- **Balance your areas of expertise.** As I said, I continued to build up my knowledge and expertise in applied statistics—the "hard" side as I call it—after graduate school. It wasn't until Mobil Chemical (16 years later) that I literally "stumbled" onto the realization I knew nothing about the "soft" side—working in groups on a shared objective. I learned about what I didn't know from a review of *The Team Handbook*. I was on a "team" that had just disintegrated and I didn't know why. *The Team Handbook* taught me why and opened my eyes to a critical lack in my knowledge base. I went on to learn everything I could about quickly building, leading, and facilitating high-performance teams and was able to apply it all when I was promoted to lead the implementation of team-based total quality management in that business group. I became known as the "team expert."
- **Look outside your organization/industry for the "next thing."** Cast a wide net to anticipate and identify what may lead to an important breakthrough for your department or organization. At Rohm and Haas, besides pushing designed experiments, I pushed for computer-based graphics (remember, this was 1972–1978 … multi-pen, flat-bed plotters). A coworker objected, saying, "Graphics? No one is asking for graphics!" Well, because I got HP's public domain software for free, our project leader sprung for an HP plotter and, voila, demand surged! ■

SOCIAL CHATTER

We asked our followers to share their best advice from a mentor for #nationalmentoringmonth.

Becky McNeil • @BiostatBecky
When conflict occurs, start with the assumption that there is a misunderstanding between parties that both mean well, instead of assuming malicious intent.

S Ellison • @slrellison
'Incompetence before malice' is a well established—but insufficiently applied—maxim

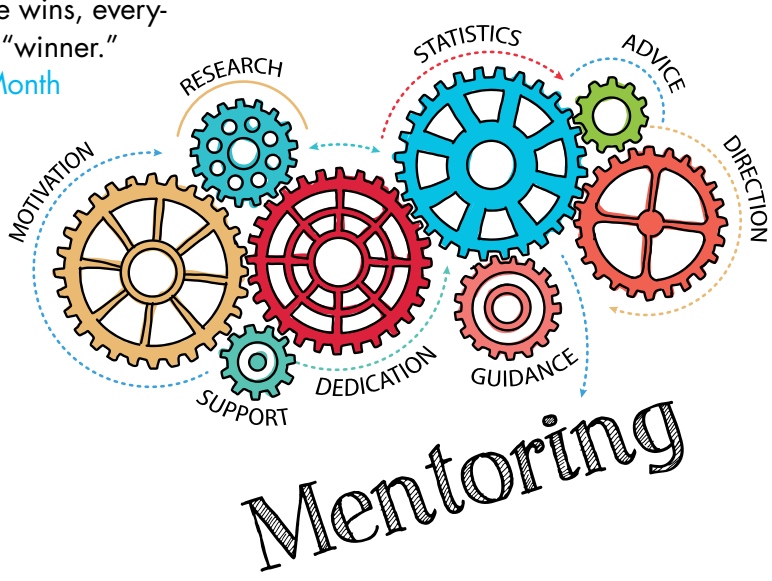
Becky McNeil • @BiostatBecky
As a young grad student, I had received minimal exposure to the concept. My mentor's living example of application of the maxim was literally a lifechanger!

Jean Adams • @JeanVAdams
Working with others is all about compromise. If anyone wins, everyone loses … even the "winner." #NationalMentoringMonth

Jacquelyn Neal • @Jacquelyn_Neal
My dissertation adviser reminded me that we are learning the research process together so I can bring ideas and issues to the table too to improve our research process, and now we are implementing project management systems to improve our productivity!

S Ellison • @slrellison
"If it is, it is"—shorthand for, roughly, 'whatever theory or model you had, facts trump theory.' Also useful for 'if only …'

yaacov petscher • @yaacovp
@schotz taught me to be careful with code, to embrace my failures, and to make sure that work is not the most important thing in life.



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#HappyHolidays

Ron Wasserstein • @Ron_Wasserstein
This is the fortune cookie I got this afternoon. Happy Holidays to all, from me and all the great people at @AmstatNews!

#mathchat

Amy Hogan • @alittlestats
Overheard in math team, after finally solving a problem that had previously stumped this group: "Ooh, that's now my favorite problem." #math #mathchat

#CSP2018

Lesley Lathrop
@lesleylathrop
So excited that I got my registration fee for the @AmstatNews Conference on Statistical Practice in PDX for Christmas. Looking forward to meeting other data nerds and learning lots! #CSP2018

NEXT MONTH
To celebrate Women's History Month, tell us, which female statistician do you admire?

Four Win Student Travel Awards to Conference on Statistical Practice

Student winners will receive registration and travel support to attend CSP 2018.

John J. Bartko Award

Stephanie Strakbein

Stephanie Strakbein completed a dual degree Bachelor of Science in Veterinary Science and Bachelor of Arts in Spanish at the University of Arizona and is currently pursuing a Master of Science in Biostatistics at Oregon Health & Science University (OHSU-PSU School of Public Health). She also works as a teaching assistant for graduate biostatistics courses and as a graduate research assistant to Thuan Nguyen. At present, she is assisting Nguyen's research in the USRDS database by extracting data relevant to questions of interest identified by their collaborator, Al-Uzri, the clinical director of pediatric nephrology at OHSU. Together, their goal is to submit an abstract to the Pediatric Academic Society. In the long run, Strakbein and Nguyen will use this database for testing Nguyen's developing method, called classified mixed model prediction, with the hope of publishing this work in an applied statistical/biostatistical journal. Strakbein also serves as president of the Portland ASA Student Chapter. Outside of academia, she enjoys hiking, spending time with her dogs, and traveling internationally.

Strakbein

Lester R. Curtin Award

Munir Winkel

Munir Winkel is a PhD candidate in statistics at North Carolina State University. While earning his master's in statistics at the University of Georgia, he worked with researchers at the Rollins School for Public Health at Emory University. In addition to working on his dissertation, which uses a Bayesian approach for design of experiments, he is collaborating with researchers at the US Centers for Disease Control and Prevention. Winkel especially enjoys bringing the tools of statistics to help address researchers' questions.

Winkel

Samantha Montag

Samantha Montag earned both her bachelor's degree (biology, science in human culture) and master's degree (epidemiology and biostatistics) from Northwestern University in Chicago, Illinois. She has worked in the Department of Preventive Medicine at Northwestern University since graduating in 2015 and collaborated with researchers studying sleep, cardiovascular disease, and organ transplantation. Montag specializes in data cleaning, data visualization, and survival methods and is fluent in SAS and R. She enjoys teaching and regularly is a teaching assistant for graduate courses in epidemiology and biostatistics. In her spare time, Montag cooks and plays board games.

Montag

CSP Portland, Oregon February 15–17 2018

Lingzi Lu Memorial Award

Lingyun Lyu

Lingzi Lu Memorial Award Winner Lingyun Lyu is a second-year master's student in biostatistics at the University of Pittsburgh. Before studying at the University of Pittsburgh, she earned an MS in pharmaceutical science from China Pharmaceutical University and worked as a pharmacist at Nanjing, China. Lingyun is a self-motivated and vibrant student. She is not only the top performer in class, maintaining a GPA of 4.0/4.0, but also actively engages in the application of statistics to real-life research studies. Previously, she worked as a team member on a proteomics project; a paper from this work is under review at *Proteomics*. Working as a SAS programmer and analyst at the Department of Health Policy and Management, Lyu gained experience in big data management and Medicare data analysis. In addition, she is working on her thesis project, addressing imperfect compliance in clinical trials with noninferiority designs. Recently, she was selected as a graduate student researcher in the school of nursing and appointed as teaching assistant in the department of biostatistics. Lyu's career goal is to improve public health and well-being as a biostatistician at a health care–related institution. ■

Lyu

Ashvin Anand Swaminathan

Ashvin Anand Swaminathan, a PhD student at Princeton University, is the recipient of the 2018 AMS-MAA-SIAM Frank and Brennie Morgan Prize for Outstanding Research in Mathematics by an Undergraduate Student for his exceptional research in algebraic geometry, number theory, and combinatorics, which has appeared in numerous well-regarded professional-level journals.

"I am deeply grateful to Mrs. Morgan for her vision and generosity and to the AMS, MAA, and SIAM for helping to support undergraduate research in mathematics," said Swaminathan.

Swaminathan is a passionate and focused researcher with deep technical knowledge that allows him to produce original and remarkable work and make breakthroughs of substantial interest to experts in long-established areas of mathematics. He has authored 10 papers, six of which have been published and one accepted to be published.

Swaminathan has been awarded Princeton's Centennial Fellowship, a National Science Foundation Graduate Research Fellowship, the Paul and Daisy Soros Fellowship for New Americans, a Barry M. Goldwater Scholarship, and the David B. Mumford Prize (for most-promising mathematics concentrator at Harvard). He did research in the University of Minnesota Duluth Research Experience for Undergraduates (REU) program and the Emory University REU program.

Swaminathan attended Harvard University, where he earned an AB in mathematics

and an AM in physics, graduating summa cum laude and Phi Beta Kappa. He is now pursuing a PhD in mathematics at Princeton University, where he is supported by three fellowships. Motivated by his undergraduate studies at Harvard and his work at the NSF Duluth and Emory REUs, Ashvin plans to pursue research in number theory and arithmetic geometry.

The Morgan Prize is awarded for outstanding research in mathematics. It is made jointly by the American Mathematical Society, the Mathematical Association of America, and the Society for Industrial and Applied Mathematics. The prize was established in 1995 and is entirely endowed by a gift from Mrs. Frank (Brennie) Morgan. ■

Vi Hart and **Matt Parker** received the 2018 Joint Policy Board for Mathematics (JPBM) Communication Award in January at the 2018 Joint Mathematics Meetings in San Diego, California.

Vi Hart received the award for entertaining, thought-provoking mathematics and music videos on YouTube that explain mathematical concepts through doodles. She is well known among the younger generation for videos, which include the series "Doodling in Math Class" and has an audience of millions. In addition, she has authored publications in computational geometry, mathematics and music, mathematical art, and mathematics education.

"I am honored to join the distinguished company of recipients of this award, which has been around just about as long as I have," Hart said when hearing about the honor. "The list of previous recipients is halfway to being a bibliography of my own influences in mathematics."

Matt Parker is being recognized for communicating the excitement of mathematics to a worldwide audience through YouTube videos, TV and radio appearances, book and newspaper writings, and stand-up comedy. In 2008, he started MathsJams as an informal gathering of people who enjoy talking about mathematics in the pub. It has gone on to become a global phenomenon with its own annual conference.

"I am extremely humbled to be selected for this prize," said Parker. "With so much amazing mathematics communication going on around the world, it is an honor to be selected by the Joint Policy Board for Mathematics. My career would not be possible without the community of mathematics enthusiasts around me." ■

Nancy Potok, chief statistician of the United States and head of the Statistical and Science Policy Office in the US Office

Obituary

James Thompson

James Thompson, Noah Harding Emeritus Professor of Statistics and statistician at Rice before there was a statistics department, died December 4 at age 79.

Thompson taught statistics at Indiana University and Vanderbilt before joining Rice University in 1970. He retired just last year, after 46 years as a member of the faculty. In 1987, statistics moved from under the mathematics science department to the school of social sciences and became a separate department with Thompson as the founding chair. The department moved to the George R. Brown School of Engineering in 1990.

"Jim taught me skepticism," said John Dobelman, who Thompson advised in 2004 while he was earning his doctorate and is now professor in the practice of statistics. "He was brutally honest. He often stepped in and, besides providing the technical and academic guidance I needed, provided family and mentorship."

Thompson was a fellow of the American Statistical Association, Institute of Mathematical Statistics, and International Statistical Institute. He was the recipient of the Army's Wilks Medal and the ASA's Don Owen Award for his work in quality control.

He directed 17 doctoral students and authored or co-authored 14 books, including *Models for Investors in Real World Markets* and *Empirical Model Building: Data, Models, and Reality*.

A memoriam written by Patrick Kurp is available at *http://bit.ly/2mrKfUE*.

From left: Steve Pierson, ASA director of science policy; Amy Nussbaum, former science policy fellow; Nancy Potok, chief statistician of the United States; and Barry Nussbaum, 2017 ASA president

of Management and Budget (OMB), was recently honored with the 2017 Presidential Meritorious Rank Award for "sustained accomplishment."

Formerly deputy director and chief operating officer of the US Census Bureau, Potok joined OMB in January of 2017. Before that, she served as the bureau's associate director for demographic programs and the principal associate director and chief financial officer in charge of field operations, information technology, and administration during the 2000 Census.

Potok has also held appointments in the US Department of Transportation, the Administrative Office of the US Courts, and the US Department of Commerce as deputy undersecretary for economic affairs. She was senior vice president at NORC at the University of Chicago and chief operating officer at McManis & Monsalve Associates. She is an elected fellow of the National Academy of Public Administration and a recipient of numerous awards, including The George Washington University Trachtenberg School Distinguished Alumni Award, the Secretary of Commerce's Silver Medal, and the Arthur S. Flemming Award.

Potok earned her BA from Sonoma State University, an MAS from the University of Alabama, and a PhD from The George Washington University. ■

Judea Pearl was recently honored with the 2018 Ulf Grenander Prize in Stochastic Theory and Modeling for the invention of a model-based approach to probabilistic and causal reasoning, the discovery of innovative tools for inferring these models from observations, and the development of novel computational methods for the practical applications of these models.

The 2018 prize was awarded in January during the Joint Mathematics Meetings in San Diego.

Pearl has had a sweeping impact on the theory and practice of statistics and machine learning, and his ideas continue to engage mathematicians, statisticians, and many other scientists with challenging analytic and algorithmic problems at the heart of modern artificial intelligence (AI).

Pearl is professor of computer science and statistics at UCLA, where he directs the Cognitive Systems Laboratory and conducts research in AI, human cognition, and philosophy of science.

He has authored numerous scientific papers and three books: *Heuristics* (1983), *Probabilistic Reasoning* (1988), and *Causality* (2000, 2009)—which won of the London School of Economics Lakatos Award in 2002. A recent book, *Causal Inference in Statistics* (2016, with M. Glymour and N. Jewell) introduces modern causal analysis to undergraduate statistics education. His forthcoming *The Book of Why* (2018, with Dana Mackenzie) explains for a general audience how the concept of cause and effect, the grand taboo in science, can be placed on a firm mathematical foundation.

Pearl is a member of the National Academy of Sciences and the National Academy of Engineering, a fellow of the Cognitive Science Society, and a founding fellow of the Association for the Advancement of Artificial Intelligence. He is a recipient of the Technion's Harvey Prize (2011) and the ACM A.M. Turing Award (2012) for the development of calculus for probabilistic and causal reasoning.

Visit the American Mathematical Association at *www.ams.org/news?news_id=3856* to read more about Pearl and the Ulf Grenander Prize. ■

San Francisco Bay Area Chapter Hosts Career Development Panel

Speakers and ASA San Francisco Bay Area Chapter volunteers meet for a careers event in December. See the next page for details about who participated.

Jeremy Gu, San Francisco Bay Area Chapter Vice President

MORE ONLINE
View more photos of the event at *http://bit.ly/2qVUN2T.*

The San Francisco Bay Area Chapter of ASA (SFASA) invited a group of panelists to speak December 7, 2017, about career development for data scientists, statisticians, and students interested in the careers of data science, machine learning, business analytics, and biostatistics. Speakers came from diverse backgrounds and provided the audience—made up of ASA members and the public—with guidance on various perspectives.

When the discussion began, each of the speakers gave a self-introduction and described how they started their career. Annette Molinaro, a professor at the University of California, San Francisco, talked about how she decided to join academia. Deepak Agarwal, vice president of engineering at LinkedIn, shared his path toward artificial intelligence and recommendation systems after earning his PhD in statistics. Imola K. Fodor, deputy global head of oncology biostatistics for gRED and breast/GYN franchise of Genentech/Roche, and Tara Maddala, head of biostatistics and data management at GRAIL, discussed their interests in statistics and research when they were studying as undergrads. Finally, Brad Klingenberg, vice president of data science at Stitch Fix; Jizhou Fu, data science manager at Uber; and Anirban Biswajit Deb, data science manager at Uber, shared their experiences working as data science managers in fast-growing startups.

Speakers and ASA San Francisco Bay Area Chapter volunteers included the following:

Chapter officers
Second row (from left):

- **Chris Barker**
  Program committee member
- **Jeremy Gu**
  Chapter vice president
- **Kathy Zhang**
  Chapter president
- **Ron Yu**
  Chapter vice president
- **Ruixiao Lu**
  Council of Chapters representative
- **Li Zhang**
  Chapter president-elect

Speakers
First row (from left):

- **Deepak Agarwal**
  Vice president of engineering at LinkedIn
- **Anirban Biswajit Deb**
  Data science manager at Uber
- **Imola K. Fodor**
  Deputy global head of oncology biostatistics for gRED and breast/GYN franchise of Genentech/Roche
- **Annette Molinaro**
  Professor of neurosurgery, epidemiology, and biostatistics at the University of California, San Francisco
- **Tara Maddala**
  Head of biostatistics and data management at GRAIL
- **Brad Klingenberg**
  Vice president of data science at Stitch Fix
- **Jizhou Fu**
  Data science manager at Uber

The questions raised by the audience concerned preparing for job interviews, applying to graduate schools, deciding between master's degrees and PhD degrees, and gaining the qualifications of a data scientist in current job markets. The panel members addressed the importance of statistical knowledge in boosting their careers, advised how to be successful in a data science career, and described work challenges—such as time planning and business communication with nonstatisticians.

After the discussion, the speakers and audience members had about an hour to chat one-on-one.

The panel speakers and audience members agreed statistics is the foundation of data science and people cannot work effectively in data science without statistical skills.

Since 2015, SFASA has successfully hosted panel discussions about career development and plans are in place to continue in 2018. ■

sectionnews

Biometrics

Zheyu Wang, Biometrics Section Publications Officer

The Chronic Kidney Disease Biomarkers Consortium (CKD BioCon) is accepting applications to fund pilot and feasibility studies focused on the discovery, validation, or qualification of chronic kidney disease (CKD) biomarkers. As part of this program, applications proposing the development and/or evaluation of new statistical methods relevant to biomarker research specifically related to CKD biomarkers will be accepted.

CKD BioCon was established by the National Institute of Diabetes and Digestive and Kidney Diseases to promote the discovery, evaluation, and validation of biomarkers to advance CKD research.

The deadline for preliminary applications is March 16. The full funding opportunity announcement can be found at *www.ckdbiomarkersconsortium.org*.

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

AWARD	DEADLINE	NOMINATIONS	QUESTIONS
Causality in Statistics Education Award	February 15	*educinfo@amstat.org*	*educinfo@amstat.org*
Harry V. Roberts Statistical Advocate of the Year Award	February 15	*awards@amstat.org*	**John Vanderploeg** *vanderp@comcast.net*
ASA Samuel S. Wilks Memorial Medal	February15	*awards@amstat.org*	**Sanjib Basu** *sanjib.ba@gmail.com*
ASA Waller Distinguished Teaching Career Award	February 15	*awards@amstat.org*	**Bradley A. Hartlaub** *hartlaub@kenyon.edu*
ASA Waller Education Award	February 15	*awards@amstat.org*	**Bradley A. Hartlaub** *hartlaub@kenyon.edu*
ASA W. J. Youden Award in Interlaboratory Testing	February 15	*awards@amstat.org*	**Blaza Toman** *blaza.toman@nist.gov*
ASA Statistics in Physical Engineering Sciences Award	February 20	*mli@alumni.iastate.edu*	**Ming Li** *mli@alumni.iastate.edu*
ASA Gertrude M. Cox Scholarship	February 23	*awards@amstat.org*	**Eloise E. Kaizar** *ekaizar@stat.osu.edu*
ASA Edward C. Bryant Scholarship	March 1	*awards@amstat.org*	**Pushpal Mukhopadhyay** *pushpal.mukhopadhyay@sas.com*
ASA Excellence in Statistical Reporting Award	March 1	*awards@amstat.org*	**Alan R. Tupek** *alan.tupek@gmail.com*
ASA Fellows	March 1	Nominations accepted at *www.amstat.org* beginning October 1, 2017	**Keith F. Rust** *keithrust@westat.com*
ASA Mentoring Award	March 1	*awards@amstat.org*	**Jessica M. Utts** *jutts@uci.edu*
ASA Outstanding Statistical Application Award	March 1	*awards@amstat.org*	**Jung-Ying Tzeng** *jytzeng@stat.ncsu.edu*
Statistical Partnerships Among Academe, Industry, and Government (SPAIG) Award	March 1	*awards@amstat.org*	**Kelly Zou** *Kelly.Zou@pfizer.com* or **Pam McGovern** *Pam.McGovern@nass.usda.gov*
ASA Founders Award	March 15	*awards@amstat.org*	**Jessica M. Utts** *jutts@uci.edu*

Excellence in Statistical Reporting Award

The Committee on Excellence in Statistical Reporting Award is accepting nominations for its 2018 award. This award is unique because the winner is not necessarily a statistician, but a member of the media who has presented the science of statistics and its role in public life, thereby contributing to the discipline significantly.

The award can be given for a single statistical article or for a body of work.

The winner will be recognized during the Sunday evening awards ceremony at the 2018 Joint Statistical Meetings in Vancouver, British Columbia, Canada. Award details, including information about submitting a nomination and the nomination form, can be found at *www.amstat.org/ASA/Your-Career/Awards/Excellence-in-Statistical-Reporting-Award.aspx*. ■

Roger Herriot Award

Nominations are sought for the 2018 Roger Herriot Award for Innovation in Federal Statistics.

The award consists of a $1,000 honorarium and a framed citation, which will be presented at a ceremony during the Joint Statistical Meetings in August 2018. The Washington Statistical Society may also host a seminar given by the winner on a subject of his or her choosing.

Herriot

The committee may consider nominations made in prior years, but it encourages resubmission of those nominations with updated information. Completed packages must be received by April 1. Electronic submissions to Mary Batcher, chair of the 2018 Roger Herriot Award Committee, at *marybat10@gmail.com* as Word or PDF files are strongly encouraged.

For more information, read the announcement in the last issue of *Amstat News: http://bit.ly/2FGfRhn*. ■

2018

February

***15–17—2018 ASA Conference on Statistical Practice, Portland, Oregon**
For details, visit *ww2.amstat.org/meetings/csp/2018/index.cfm* or contact ASA Meetings, 732 N. Washington St., Alexandria, VA 22314; (703) 684-1221; *meetings@amstat.org*.

March

2–3—2nd International Conference on Quantitative, Social, Biomedical, and Economic Issues, Athens, Greece
For more information, visit *icqsbei2018.weebly.com* or contact Christos Frangos, Tepelenioy 7, Herakleion Attikhs, Athens, International 14121, Greece; 00302102833756; *cfragos@teiath.gr*.

April

14–15—2018 Spring Workshop: Information, Causal Models, and Model Diagnostics, Pittsburgh, Pennsylvania
For more information, visit *www.american.edu/cas/economics/info-metrics/workshop/workshop-2018-Spring.cfm* or contact Arnob Alam, 4400 Massachusetts Ave. NW, Washington, DC 20016; (202) 885-3758; *info-metrics@american.edu*.

***18—11th Annual University of Pennsylvania Conference on Statistical Issues in Clinical Trials: Estimands, Sensitivity Analysis, and Missing Data in Clinical Trials, Philadelphia, Pennsylvania**
For details, contact Jonas H. Ellenberg, 423 Guardian Drive, Suite 602, Philadelphia, PA 19104; *jellenbe@pennmedicine.upenn.edu*.

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

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

›› Indicates events posted since the previous issue

»**28–30—4th International Researchers, Statisticians, and Young Statisticians Congress (IRSYSC 2018), Izmir, Turkey**
For more information, visit *www.irsysc2018.com* or contact Aylin Alin, Dokuz Eylül University Faculty of Science, Department of Statistics, Buca Izmir, Turkey, International 35390; *irsysc2018@gmail.com*.

May

4–6—The 6th Workshop on Biostatistics and Bioinformatics, Atlanta, Georgia
For more information, visit *math.gsu.edu/yichuan/2018Workshop* or contact Yichuan Zhao, Department of Mathematics and Statistics, Atlanta, GA 30303; (404) 413-6446; *yichuan@gsu.edu*.

***6–8—30th Annual Kansas State University Conference on Applied Statistics in Agriculture, Manhattan, Kansas**
For more information, visit *http://conferences.k-state.edu/applied-stats* or contact Jo Blackburn, Kansas State University, Department of Statistics, 101 Dickens Hall, 1116 Mid-Campus Drive North, Manhattan, KS 66506; (785) 532-0511; *jablack@k-state.edu*.

7–8—Conference on Predictive Inference and Its Applications, Ames, Iowa
For details, visit *PredictiveInference.github.io* or contact Dan Nettleton, 2115 Snedecor Hall, Ames, IA 50011-1210; (515) 294-7754; *dnett@iastate.edu*.

***10–11—Two-Year College Data Science Summit, Washington, DC**
For details, visit *www.amstat.org/ASA/Education/Two-Year-College-Data-Science-Summit.aspx* or contact Steve Pierson, 732 North Washington St., Alexandria, VA 22314; (703) 302-1841; *pierson@amstat.org*.

10–11—ISCCRO'18 - The 2nd International Statistical Conference in Croatia, Opatija, Croatia
For more information, visit *www.hsd-stat.hr/en/international-statistical-conference-in-croatia-isccro18* or contact Ksenija Dumicic, Ilica 3, Zagreb, International HR-10000, Croatia; 98380204; *ksenija.dumicic@hsd-stat.hr*.

***16–19—Symposium on Data Science and Statistics, Reston, Virginia**
For more information, visit *ww2.amstat.org/meetings/sdss/2018* or contact ASA Meetings, 732 N. Washington St., Alexandria, VA 22314; *meetings@amstat.org*.

»**17–20—IISA2018 Conference, Gainesville, Florida**
For more information, visit *iisa2018.iisaconference.org* or contact Somnath Datta, University of Florida, Gainesville, FL 32611; *iisa2018spc@gmail.com*.

June

»***3–6—SRCOS Summer Research Conference 2018, Virginia Beach, Virginia**
For details, contact Mike Kutner, 1518 Clifton NE, Atlanta, GA 30322; (404) 712-9708; *mkutner@emory.edu*.

»**11–14—2018 Joint Research Conference on Statistics in Quality, Industry, and Technology, Santa Fe, New Mexico**
For more information, visit *www.cvent.com/events/joint-research-conference/event-summary-2bf39a1d96194e5584e-2d22a70df0c31.aspx* or contact Joanne Wendelberger, Statistical Sciences Group, CCS-6, MS F600, Los Alamos, NM 87545; *joanne@lanl.gov*.

11–15—ISNPS2018, Salerno, Italy
For details, visit *www.isnps2018.it* or contact Marcella Niglio, Via Giovanni Paolo II, 132, Fisciano (SA), International 84084, Italy; +39 089962651; *isnps2018@unisa.it*.

17–20—International Symposium on Forecasting, Boulder, Colorado
For more information, visit *isf.forecasters.org* or contact Pam Stroud, 53 Tesla Ave., Medford, MA 02155; (781) 234-4077; *isf@forecasters.org*.

24–29—ISBA 2018, Edinburgh, United Kingdom
For more information, visit *bayesian.org/isba2018* or contact Diane Horberry, 15 South College St., Edinburgh, International EH8 9AA, UK; 0044 (0) 131 650 9831; *isba2018@maths.ed.ac.uk*.

July

2–6—6th International Statistical Ecology Conference, St. Andrews, Scotland
For details, visit *www.isec2018.org* or contact Claudia Faustino, CREEM, University of St. Andrews, Fife, Scotland, International KY16 9LZ; +4401334 461 842; *isec2018@st-andrews.ac.uk*.

9–11—Data Science, Statistics, and Visualisation (DSSV 2018), Vienna, Austria
For details, visit *iasc-isi.org/dssv2018* or contact Peter Filzmoser, Wiedner Hauptstrasse 8-10, Vienna, International 1040, Austria, +43 664 605881051, *dssv2018@gmail.com*.

16–20—33rd International Workshop on Statistical Modelling, Bristol, United Kingdom
For more information, visit *www.statmod.org/society.htm* or contact Simon Wood, School of Mathematics, Bristol, International BA2 6BS, UK; *simon.wood@bath.edu*.

16–20—CBMS Conference on Elastic Functional and Shape Data Analysis, Columbus, Ohio
For details, visit *stat.osu.edu/cbms-efsda* or contact Sebastian Kurtek, Department of Statistics, Ohio State, Columbus, OH 43210; (614) 292-0463; *kurtek.1@osu.edu*.

16–21—The 28th Annual Conference of the International Environmetrics Society (TIES 2018), Guanajuato, Mexico
For more information, visit *ties2018.eventos.cimat.mx* or contact L. Leticia Ramirez-Ramirez, Jalisco SN Col Valenciana, Guanajuato, International 36023, Mexico; *ties2018@cimat.mx*.

***28–8/2—2018 Joint Statistical Meetings, Vancouver, Canada**
For more information, visit *ww2.amstat.org/meetings/jsm/2018/index.cfm* or contact ASA Meetings, 732 N. Washington St., Alexandria, VA 22314; (703) 684-1221; *meetings@amstat.org*.

August

26–30—ISCB ASC 2018, Melbourne, Australia
For details, visit *iscbasc2018.com* or contact Arinex Pty Ltd, 91-97 Islington St., Collingwood, International 3066, Australia; *iscbasc2018@arinex.com.au*.

September

»**6–7—Actuarial Risk Modelling and Extreme Values Workshop, Canberra, Australia**
For details, visit *www.rsfas.anu.edu.au/rsfas-research/workshop-series* or contact Ross Maller, The Australian National University Research School of Finance,

Actuarial Studies, and Statistics, CBE Building 26C, Kingsley Street, Canberra ACT 0200, Canberra, International 0200, Australia; 61261253650; *ross.maller@anu.edu.au*.

8–10—The Third Workshop on Higher-Order Asymptotics and Post-Selection Inference (WHOA-PSI), St. Louis, Missouri
For more information, visit *www.math.wustl.edu/~kuffner/WHOA-PSI-3.html* or contact Todd Kuffner, Campus Box 1146, 1 Brookings Drive, St. Louis, MO 63131; *kuffner@wustl.edu*.

October

25–27—Big Data Meets Survey Science (BigSurv18), Barcelona, Spain
For details, visit *www.bigsurv18.org* or contact Antje Kirchner, 3040 E. Cornwallis Road, Research Triangle Park, NC; (919) 316-3328; *info@bigsurv18.org*.

December

»***3–7—74th Annual Deming Conference on Applied Statistics, Atlantic City, New Jersey**
For more information, visit *www.demingconference.com* or contact Walter Young, 16 Harrow Circle, Wayne, PA 19087; (415) 819-8884; *demingchair@gmail.com*.

July

»***27–8/1—2019 Joint Statistical Meetings, Denver, Colorado**
For details, contact ASA Meetings, 732 North Washington St., Alexandria, VA 22314; (703) 684-1221; *meetings@amstat.org*. ■

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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.*

Alabama

■ The University of South Alabama Department of Mathematics and Statistics invites applications for a full-time (9 month), tenure-track assistant professor position in statistics/biostatistics, starting August 15, 2018. Applicants must have a doctoral degree in statistics, biostatistics, or a closely related field. Apply at *www.mathjobs.org*. Review of applications will begin on December 19, 2017. The University of South Alabama is an EO/AA Employer-Minorities/Females/Veterans/Disabilities/Sexual Orientation/Gender Identity.

District of Columbia

■ The Department of Mathematics and Statistics at American University in Washington, DC, invites applications for a tenure-line Assistant Professor position in Statistics, beginning in August 2018. We welcome researchers in all areas of Statistics. We are open to researchers who ignore traditional disciplinary boundaries. Apply at *mathjobs.org*. Applications submitted by December 1 will receive full consideration. American University is an equal opportunity, affirmative action institution.

Indiana

■ The Department of Statistics at Purdue University invites applications for two non-tenure track Continuing Lecturer positions beginning in January or August 2018. Successful candidates will hold a PhD in statistics or related field with at least two years of teaching experience. Please visit *www.stat.purdue.edu/hiring* to apply. A background check will be required for employment in these positions. Purdue University's Department of Statistics is committed to advancing diversity in all areas of faculty effort, including scholarship, instruction, and engagement. Candidates should address at least one of these areas in their cover letter, indicating their past experiences, current interests or activities, and/or future goals to promote a climate that values diversity and inclusion. Purdue University is an EOE/AA employer. All individuals, including minorities, women, individuals with disabilities, and veterans are encouraged to apply.

Kansas

■ The Department of Biostatistics at the University of Kansas Medical Center is recruiting an Assistant Professor on the educator track who will teach in our online MS program in Applied Statistics and Analytics and our MS and PhD programs in Biostatistics, serving on committees, advising students, and conducting research and evaluation of educational activities. To apply, *https://jobs.kumc.edu* and search position 01201654. KUMC is an EEO.

Maine

■ Husson University has two faculty positions in Applied Statistics or Data Analytics at the level of Assistant Professor. Teaching responsibilities include 12 credit hours per semester of statistics and research design courses at the general education level, data analytics courses, as well as upper level statistics courses to be taught at our Bangor campus and select courses in an online platform. Apply Here: *www.Click2Apply.net/k944c9wrptt2s7p2.* EOE.

St. Jude Children's Research Hospital
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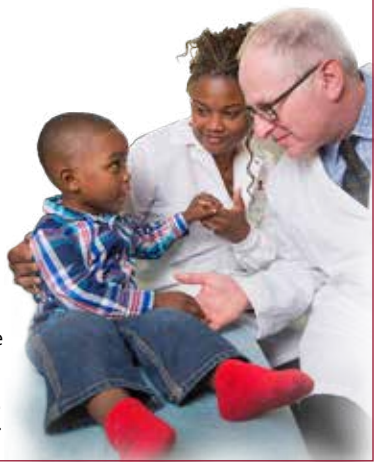
Assistant/Associate Faculty Member

The Department of Biostatistics at St. Jude Children's Research Hospital (**www.stjude.org/biostatistics**) invites applications for two faculty position at the Assistant or Associate Member (Professor) level depending upon qualifications and experience. Candidates must have a PhD in Biostatistics or Statistics and a record of peer-reviewed publications showing evidence of (for Assistant Member, a potential of) productive methodological research. The selected candidate will be expected to have continued independent statistical research motivated by biomedical collaborations.

For the first positon preference will be given to candidates with statistical research interests in Survival Analysis, Longitudinal Analysis or Multivariate Analysis and a commitment to collaborative research with clinical investigators. Experience in designing and conducting epidemiological studies is highly desirable.

For the second positon preference will be given to candidates with statistical research interests in Survival Analysis, and clinical trial design. Experience with pre-clinical studies (e.g. anti-tumor activity in tumor xenograft models, synergistic effects in vitro and in vivo testing), as well as designing and conducting early phase (phase I and II) clinical trials is highly desirable.



The Department staff includes thirteen faculty positions, two post-doctoral fellows, twenty-two master's level biostatisticians, eight computer scientists and several support staff. Applicants must demonstrate excellent oral and written communications skills, have interest in biomedical collaborations and be proficient in computing. Compensation is very competitive and commensurate with experience. Send letter of interest, CV, and have three reference letters sent to: **kumar.srivastava@stjude.org or Dr. Deo Kumar Srivastava, Interim Chair, Dept. of Biostatistics, St. Jude Children's Research Hospital, 262 Danny Thomas Place, Memphis, TN 38105-3678**. EE/AAE.

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Massachusetts

■ Massachusetts General Hospital's Medical Practice Evaluation Center seeks faculty level biostatistician with doctoral degree in Statistics, Biostatistics, or Epidemiology. Appointment as Assistant or Associate Professor at Harvard Medical School commensurate with experience, training, and achievements. Requirements include: expertise in survival analysis, multivariate statistics, longitudinal modeling, simulation modeling, structural equation modeling, and other data analytic techniques. Apply via *www.massgeneral.org/careers* (Job ID Number: 3034719). We are an equal opportunity employer and all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, disability status, protected veteran status, or any other characteristic protected by law.

North Carolina

■ IDDI seeks a Senior Biostatistician who collaborates on the design, analysis, interpretation and communication of scientific investigations by creating statistical products focused on data analysis and reporting. The Senior Biostatistician supports the analysis of data gathered during the completion of clinical trials. Applicants must have a Masters in Biostatistics or Statistics and at least 5 years experience in clinical research. Apply online: *www.iddi.com/category/jobs/vacancies-usa* EOE.

Ohio

■ Statistical Programmers I positions (3 openings) at the Cleveland Clinic Foundation in Cleveland, OH. Duties: working as part of a project team providing expertise related to data collection, database development, data management, programming, statistical analysis & presentation of data. MS + demonstrated expertise in SAS or R.

Résumés: Cleveland Clinic Foundation ATTN: Jill Zavoda, *zavodaj@ccf.org* EOE. No calls. (Principals only).

Oklahoma

■ The Department of Mathematics at the University of Tulsa seeks candidates to fill a tenure-track position in Statistics at the Assistant Professor level. Requirements include a PhD in statistics or a closely related field, a commitment to teaching excellence, clear potential for productive research, and ability to contribute to a new interdisciplinary program in Data Science. To apply: Email to *coberly@utulsa.edu* or *https://utulsa.edu/about/working-at-tu/available-positions*. The University of Tulsa is an equal opportunity employer and is especially interested in candidates who can contribute to the diversity and excellence of the academic community through their research, teaching and/or service.

Pennsylvania

■ The Department of Pathology and Laboratory Medicine at the University of Pennsylvania's Perelman School of Medicine seeks a tenure track Assistant/ Associate Professor, to teach graduate and medical school students, and to develop and implement a research program. Applicants must have a PhD and/or MD degree, demonstrated qualifications in education and research, and experience in systems biology emphasizing the central nervous system. Apply online: *www.med.upenn.edu/apps/faculty_ad/index.php/g/d4878.* We seek candidates who embrace and reflect diversity in the broadest sense. The University of Pennsylvania is an EOE. Minorities/ Women/ Individuals with disabilities/ Protected Veterans are encouraged to apply. ■

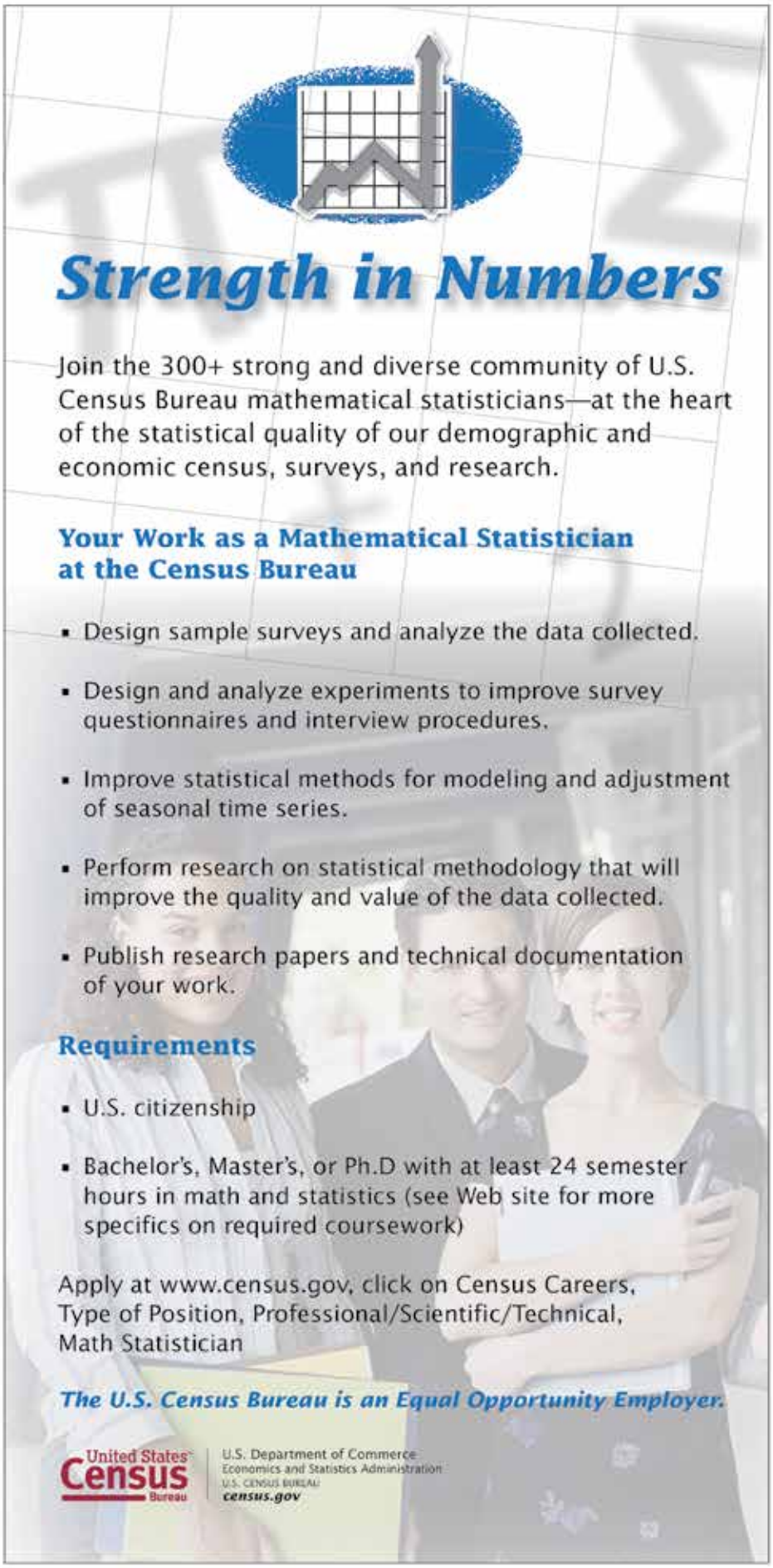
THE UNIVERSITY OF IOWA
College of Public Health

The University of Iowa Department of Biostatistics invites applications for a tenured or tenure-track faculty position at the rank of Associate Professor, with research expertise in the area of clinical trials. Exceptional applicants will also be considered at the rank of Assistant Professor. The successful candidate will hold a leadership appointment in the Clinical Trials Statistical and Data Management Center (CTSDMC).

The position requires a PhD or equivalent in Biostatistics, Statistics, or a related area.

See http://jobs.uiowa.edu/ (req #71994) 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.



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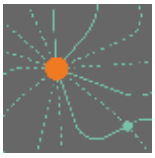

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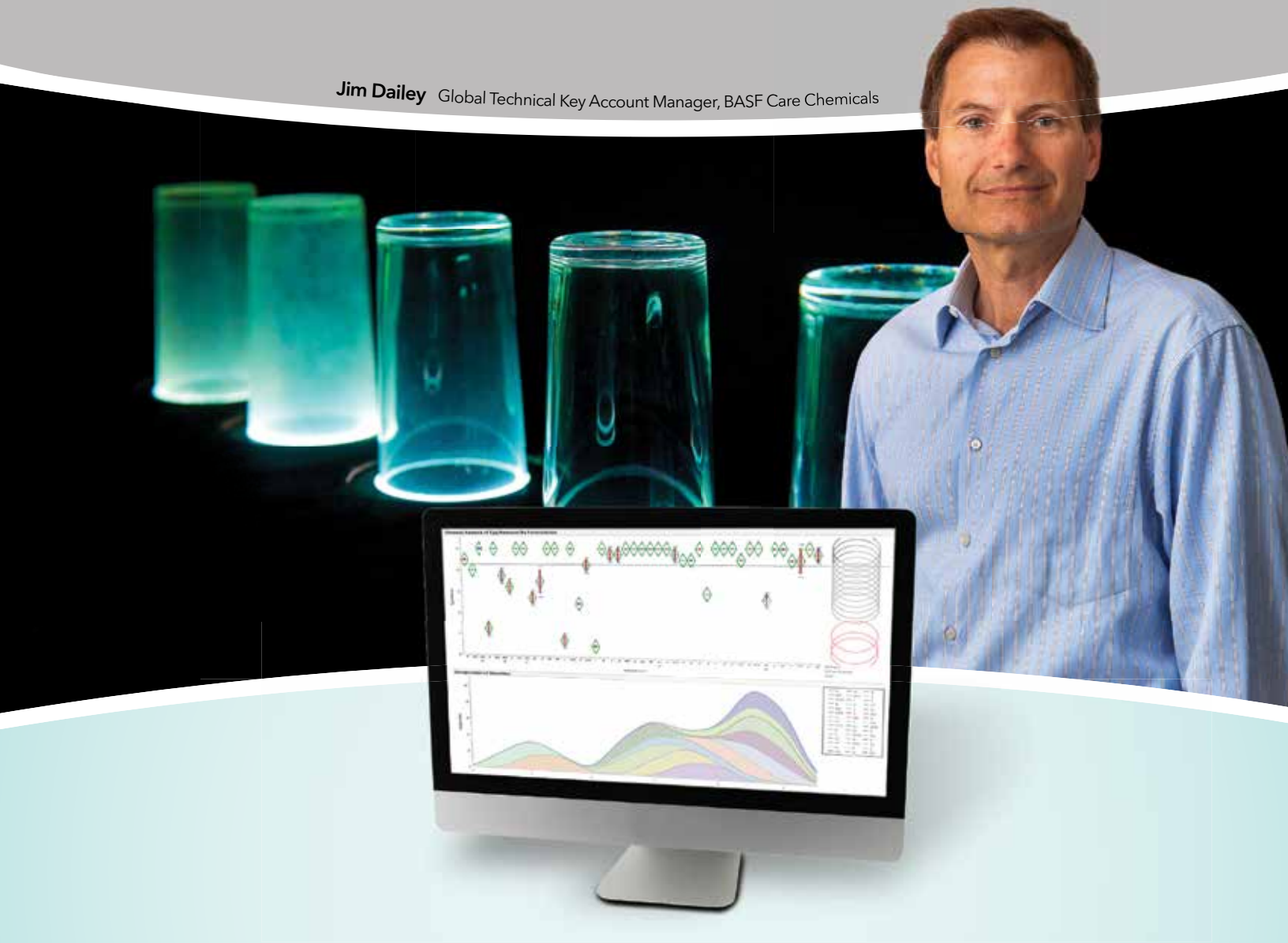

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