

October 2022 • Issue #543

AMSTATNEWS

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

JSM 2022:

TOGETHER AGAIN

Greetings from the

DISTRICT

of Columbia

ALSO:

What's Going On in This Graph?
Begins Sixth Year

Establishing and Maintaining
Trust in a Federal Statistical
Agency: A Discussion from the
National Academies

Join 14,000+ of your peers in applied mathematics and computational science when you join SIAM!

GET 25% OFF NOW

As a SIAM Member, you'll get:

- Subscriptions to *SIAM News*, *SIAM Review*, and *SIAM Unwrapped* e-newsletter
- Discounts on SIAM books, journals, and conferences
- Eligibility to join SIAM Activity Groups
- The ability to nominate two students for free membership
- Eligibility to vote for or become a SIAM leader
- Eligibility to nominate or to be nominated as a SIAM Fellow

You'll Experience:

- Networking opportunities
- Access to cutting edge research
- Visibility in the applied mathematics and computational science communities
- Career resources

You'll Help SIAM to:

- Increase awareness of the importance of applied and industrial mathematics
- Support outreach to students
- Advocate for increased funding for research and education



SIAM has been my primary professional society for the past 45 years not only because of the high-quality journals and conferences covering a wide range of topics that interest me, but also because it is a superb collection of people. ...I can attest to the difference that SIAM membership has made for me both personally and professionally.

— Randy LeVeque, SIAM Member, Fellow, and Board Member

Join SIAM today at siam.org/joinsiam

SAVE
25%

Get 25% off regular membership prices when you join by December 31, 2022 and enter promo code **MBNW23**.

siam | Society for Industrial and Applied Mathematics

AMSTATNEWS

OCTOBER 2022 • ISSUE #543

Executive Director

Ron Wasserstein: ron@amstat.org

Associate Executive Director and Director of Operations

Stephen Porzio: steve@amstat.org

Director of Science Policy

Steve Pierson: pierson@amstat.org

Director of Strategic Initiatives and Outreach

Donna LaLonde: donna@amstat.org

Director of Education

Rebecca Nichols: rebecca@amstat.org

Managing Editor

Megan Murphy: megan@amstat.org

Editor and Content Strategist

Val Nirala: val@amstat.org

Advertising Manager

Joyce Narine: joyce@amstat.org

Production Coordinators/Graphic Designers

Olivia Brown: olivia@amstat.org

Megan Ruyle: meg@amstat.org

Contributing Staff Members

Naomi Friedman • Kim Gilliam • Amanda Malloy

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

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

American Statistical Association
732 North Washington Street
Alexandria, VA 22314-1943 USA
(703) 684-1221

ASA GENERAL: asainfo@amstat.org

ADDRESS CHANGES: addresschange@amstat.org

AMSTAT EDITORIAL: amstat@amstat.org

ADVERTISING: advertise@amstat.org

WEBSITE: <http://magazine.amstat.org>

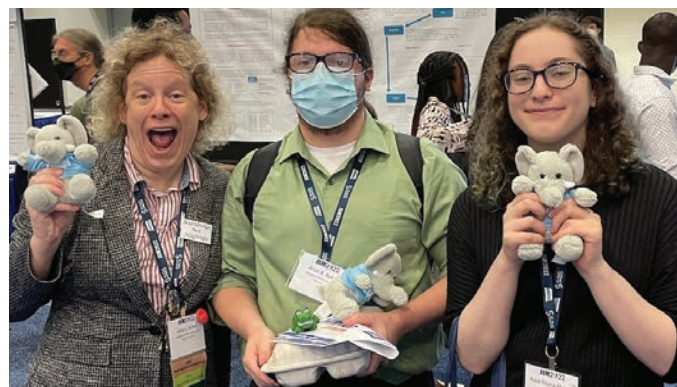
Printed in USA © 2022
American Statistical Association



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

features

- 3 President's Corner
- 5 Highlights of the August 5–6, 2022, Board of Directors Meeting
- 7 My ASA Story: Arinjitia Bhattacharyya, Senior Scientist
- 8 Meet Robert Santos, US Census Bureau Director
- 10 Finding Ada: Identifying, Engaging, and Empowering Women in Statistics and Data Science
- 11 The Spirit of Giving Back
- 12 More Work Needed to Increase Racial, Ethnic Diversity in Biostatistics, Epidemiology Departments
- 14 History of Statistics: A STEM-Based Study Abroad Experience
- 15 *Significance* Highlights: August Issue Features Data from Middle Ages, Data Viz Heroes
- 16 Establishing and Maintaining Trust in a Federal Statistical Agency: A Discussion from the National Academies
- xx Headline



columns

- 22 **STATtr@k**
#undergradsatJSM: Why Undergraduate Students Belong at the Joint Statistical Meetings

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

JOURNAL UPDATES

The *Journal of Survey Statistics and Methodology* received its first impact factor in 2021, with the 2022 release representing the second impact factor for the journal. The new impact factor for *JSSAM* is 2.446, up from the 2020 impact factor of 1.957. The rankings for 2021 were 23/53 in Social Sciences, Mathematical Methods and 29/125 in Statistics and Probability, improving from the corresponding 2020 rankings of 29/52 and 46/125. Read the latest issue of *JSSAM* at <https://academic.oup.com/jssam?login=false>.

Royal Society Publishing recently published a special open access issue of *Philosophical Transactions of the Royal Society A*, themed "Technical Challenges of Modelling Real-Life Epidemics and Examples of Overcoming These," compiled and edited by Jasmina Panovska-Griffiths, William Waites, and Graeme J. Ackland. Access the journal at www.bit.ly/TransA-2233.

LESLIE MCCLURE AWARDED LECTURESHIP

The inaugural Barry P. Katz Lectureship in Biostatistics and Health Data Science has been awarded to Leslie McClure, professor and chair of the epidemiology and biostatistics department in the Drexel University Dornsife School of Public Health and associate dean for faculty affairs. She is a fellow of the American Statistician Association, American Heart Association, Society of Clinical Trials, and Hedwig van Ameringen Executive Leadership in Academic Medicine program. She is also president-elect for the East North American Region of International Biometrics Society. To learn about the Katz Lectureship, visit <https://medicine.iu.edu/biostatistics/news-events/katz-lecture>.

WHAT IS STATISTICS?

At one point this summer, the Statistical Consulting Section forum on ASA Connect held an interesting discussion about where to categorize statistics. Essentially, the question was, "Is the field of statistics a branch of mathematics, science, or something else altogether?" Read their responses at <https://magazine.amstat.org>.

CORRECTIONS

In the September issue, a line in the article titled "Xihong Lin: On the Front Lines of COVID-19 Research" should have read, "She was then asked to serve on the COVID-19 Massachusetts State Task Force." We apologize for the error.

Also, in the September issue, the Twitter handle for @DrJaniceJ was incorrect. We regret the error.



Party Like It's JSM 2022: Page 24

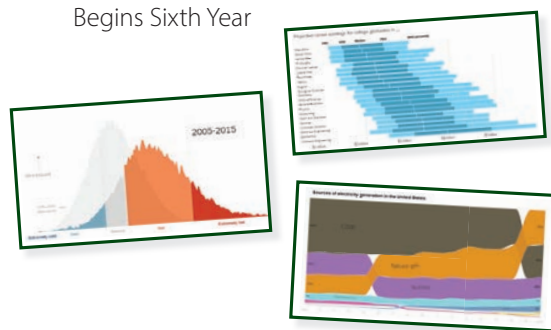
departments

24 meetings

JSM 2022: Together Again
Planning Underway for SDSS 2023

35 education

What's Going On in This Graph?
Begins Sixth Year



member news

- 37 Awards and Deadlines
- 38 People News
- 43 Section • Chapter • Committee News
- 44 Professional Opportunities



Follow us on Twitter
www.twitter.com/AmstatNews



Join the ASA Community
<http://community.amstat.org>



Like us on Facebook
www.facebook.com/AmstatNews



Follow us on Instagram
www.instagram.com/AmstatNews



Subscribe to our YouTube channel
www.youtube.com/user/AmstatVideos

Statisticians Lead the Way

A world that relies on data and statistical thinking to drive discovery and inform decisions is the vision of the American Statistical Association. Building on the work of past ASA presidents, I have focused on adding “with statisticians leading the way” to that vision and am thrilled the ASA Leadership Institute has a new website and initiatives (<https://bit.ly/AmstatLeads>). The goals of the institute are to inspire new ideas, innovations, and collaborations; promote statistical leaders by providing education and coaching; and advise entrepreneurs and leaders in all sectors.

During the board of directors meeting on November 18, we will launch the first Influencing Discovery Exploration and Action (IDEA) Forum. The annual IDEA Forum will bring together scientists, leaders, and policymakers to advance solutions to global challenges and identify opportunities in which statistics plays a critical role. The 2022 forum will focus on managing and mitigating the impact of climate change—identifying the challenges and introducing important areas of statistical research and application. A special issue of *CHANCE*, to be published in early 2023, will highlight the outcomes of the forum and provide an opportunity to extend the discussion. Moving forward, the IDEA Forum will continue to be sponsored by the ASA Leadership Institute and hosted by the ASA Board of Directors.

November 18 is also ASA Giving Day. The theme of ASA Giving Day 2022 is *Leading the Way for Innovation Through Statistics and Data Science and Empowering Through Education, Advocacy, and Community*. The board will kick off the day with a live-streamed message, and the popular Early Bird, Afternoon Energizer, and Donate and Share prize drawing contests will return this year, as will the Chapter and University challenges. Visit www.amstat.org/givingday for more information.

An essential membership benefit is the extensive professional development provided through the chapters and sections. Many courses are offered during JSM and other meetings, but also independently by sections and chapters. The Leadership Institute

website will serve as an additional location to learn about these numerous opportunities.

Further, a primary goal of the Leadership Institute is to create and offer additional professional development opportunities that do not naturally fall to sections or chapters. We will build on existing opportunities such as StatXW: Preparing to Be an Expert Witness. With the growth of data-driven decisions throughout society comes the parallel need for the statistical expert witness. StatXW is designed to assist mid- to late-career professional statisticians with the basics of sharing their expertise through this venue. ASA Director of Strategic Initiatives and Outreach Donna LaLonde and I will offer the course October 19, 20, 26, and 27 from 3:00 p.m. to 5:00 p.m. ET.



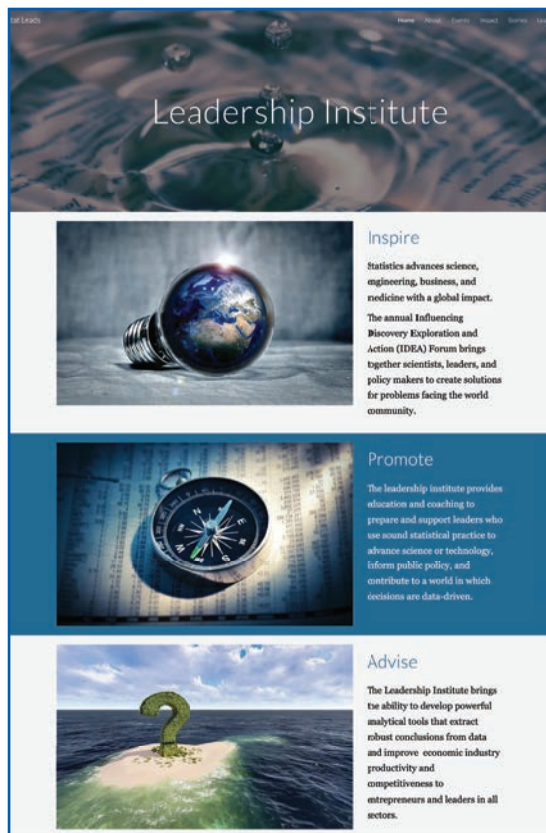
Katherine Ensor



The StatXW framework we are using to organize the course contains four modules: preliminaries; plan; prepare; and perform. During these modules, participants will develop an approach for serving as a statistical expert witness, which will include composing a statement of expertise. Participants will

MORE ONLINE

Learn about longtime ASA member Mohamed Al Lawati and why he chose to financially support the Leadership Challenge at <https://magazine.amstat.org/blog/2021/01/01/dr-mohamed-al-lawati>.



gain knowledge of the challenges and opportunities encountered by the statistical expert witness. Further, we invite experts from our community to share their experiences with course participants, thereby enriching the experience. Register for the course at bit.ly/3DNKDFB.

The ASA Leadership Challenge is an example of an offering for students and early-career members. The current challenge requires submitting a short video highlighting the benefits of ASA membership. Submissions are due by December 31. Visit <https://bit.ly/Amstat-LeadershipChallenge> for details.

In last month's column, I introduced the newly formed Caucus of Industry Representatives, which will complement the existing Caucus of Academic Representatives. The Leadership Institute will work with both groups to support the career advancement of their members. To start, an early November workshop is planned for members of the Caucus of Academic Representatives interested in pursuing academic leadership positions beyond their current roles.

The Leadership Institute will highlight another new group, the University Leadership Council,

whose primary goal is to provide a forum for biostatisticians and statisticians serving in academic leadership positions at the dean's level or higher. This group will serve as primary mentors for members of the Caucus of Academic Representatives and others interested in advancing in university leadership positions.

The ASA Leadership Institute will also support the efforts of the External Nominations and Awards Committee (ww2.amstat.org/committees/commdetails.cfm?txtComm=CCNAWD09). The charge of this committee speaks directly to the goals of the Leadership Institute, namely:

Identify boards, committees, and other bodies, external to statistics, to which statisticians should be appointed to assist in advancing science and in raising the profile of the profession. Similarly, identify high-profile awards (external to statistics) for which some statisticians might be eligible. Identify people who should be nominated for these positions or awards and identify and reach out to people who would be able to effectively nominate them.

Thank you to current and past committee members for their diligence in assisting our profession in this capacity. The nominations in which I have been involved as president have proven highly successful, thanks to the nominees' efforts and the efforts of ASA staff. I encourage members to share ideas and opportunities for promoting our members with this committee.

The ASA Leadership Institute will also focus on telling the stories of our impact and success. Our contributions to science and society are significant. In my JSM 2022 address, I highlighted some of these stories and know there are many more. I asked for your help as I prepared for JSM and am asking again. Please continue to help us acknowledge our impact. Not only will we be able to celebrate our success through the ASA Leadership Institute, but we will also be able to better support the work of the External Nominations and Awards Committee.

I will end this column as I did last month's with this important message: What you do matters! I am excited that the ASA Leadership Institute will be able to support your work and professional development.

Kathy B. Enos

Highlights of the August 5–6, 2022, Board of Directors Meeting

Ron Wasserstein, ASA Executive Director

On Friday, August 5, ASA President Kathy Ensor called to order the JSM 2022 meeting of the ASA Board of Directors. The board met at the Marriot Marquis DC, the JSM headquarters hotel. Highlights of the meeting follow.

Actions

The board ...

- Approved the 2023 ASA budget.
- Formed a task force to explore and recommend actions to the ASA Board for building partnerships and joint programs with the American Society of Clinical Oncology (ASCO) and American Association for Cancer Research (AACR).
- Formed a task force to consider the criteria the ASA should use when selecting future meeting locations. The task force will look broadly at the factors that ensure a meeting is successful and aligned with the Code of Conduct.
- Approved negotiating a contract with a consulting firm to help the ASA develop and implement its diversity, equity, and inclusion goals.
- Approved the formation of a Caucus of Industry Representatives, modeled after the Caucus of Academic Representatives.

Reports and Discussions

- Associate Executive Director and Director of Operations Steve Porzio summarized the financials for the first half of 2022. Operations are tracking as expected financially.
- ASA Treasurer Ruixiao Lu reported on the ASA's investments. She reviewed the allocation of the ASA's investments as of mid-year and discussed the general economic outlook as it may affect investments. Lu also updated the board on the activities of the Investments Committee, Budget Committee, and Audit Committee.

2022 Board of Directors

Kathy Ensor, President

Dionne Price, President-Elect

Scarlett Bellamy, Vice President (completing the term of Dionne Price)

Matilde Sanchez-Kam, Second-Year Vice President

Nick Horton, First-Year Vice President

Ji-Hyun Lee, Third-Year Council of Chapters Representative

Alexandra Hanlon, Second-Year Council of Chapters Representative

Kendra Schmid, First-Year Council of Chapters Representative

Rebecca Hubbard, Third-Year Council of Sections Representative

Kate Calder, Second-Year Council of Sections Representative

Michelle Shardell, First-Year Council of Sections Representative

Alexandra Schmidt, International Representative

Bin Nan, Publications Representative

Ruixiao Lu, Treasurer

Ron Wasserstein, Executive Director and Board Secretary

- Amanda Malloy, ASA director of development, updated the board on fundraising activities. She highlighted the success of the nascent ASA GivesBack program, which organized Impact DC, an opportunity at JSM to provide food for the area homeless community.

- The board heard about three programs that leverage resources to support statisticians and data scientists: (1) the Virginia Tech Collaborative Undergraduate Biostatistics Experience (CUBE) program; (2) the NSF-funded National Data Mine Network, which is a grant to the ASA that builds on a successful initiative at Purdue; and (3) the R Govys initiative, which is a result of the ASA membership in the R Consortium. The ASA wants to promote and support these kinds of efforts.
 - ASA Vice President Nick Horton updated the board on Foundations of Data Science for Students in Grades K–12: A Workshop, to be held September 13–14 and hosted by the National Academies. Several National Academies entities have been re-envisioning K–12 education with a focus on data and computational tools. This workshop is part of that process.
 - Donna LaLonde, ASA director of strategic initiatives and outreach, noted the International Day of Women in Statistics and Data Science (*idwds.org*) will be held beginning at 12 a.m. UTC on October 11 and is sponsored by the Caucus for Women in Statistics, Statistical Society of Portugal, and the ASA. There will be virtual presentations throughout the day, all celebrating the involvement of women in statistics and data science.
 - ASA Director of Science Policy Steve Pierson provided his regular report on the ASA's advocacy efforts. Pierson updated the board on the new chief statistician of the US, science and statistical agency budgets, plans for JSM 2022 Hill Day, activities of the ASA Committee on Privacy and Confidentiality, and a variety of other ongoing matters.
 - The board discussed setting priorities for the audiences and functions of the ASA website based on the strategic goals of the association.
 - Wendy Naus, executive director of the Consortium of Social Science Associations, updated the board on the consortium's role and activities. The ASA is a founding member of the Consortium of Social Science Associations. Naus noted that the consortium is an advocacy organization with institutional members, but individual members of these institutions have access to the consortium's resources.
 - Paul Schroeder, executive director of the Council of Professional Associations on Federal Statistics, updated the board on council's role and activities. The ASA is a founding member of the Council of Professional Associations on Federal Statistics. Schroeder noted the council's mission, which focuses on the federal statistical agencies, and reviewed key audiences and activities.
 - The board discussed a nearly final update to the Membership Retention and Growth and Public Awareness portions of the ASA Strategic Plan. The update will appear on the website soon. The board will next address the Publications and Professional Development portions of the strategic plan.
 - ASA Executive Director Ron Wasserstein reviewed the status of follow-up on the recommendations the ad hoc Committee on Increasing Diversity in Publications made. The policy document review process is well underway. Two townhall meetings have been held, and two focus group meetings are scheduled for JSM.
 - The board worked through a set of discussion questions regarding planning for future ASA meetings. The board had many observations and suggestions for staff follow-up.
 - Ensor updated the board on 2022 initiatives, including expanding the role of the ASA in data science and AI, developing the Leadership Institute, and highlighting the impact statisticians are having on many areas.
 - National Mathematics Alliance Director David Goldberg updated the board on the activities of the alliance, of which the ASA is a sponsor. He reviewed the mission and activities of the alliance, noting the importance of the ASA's involvement and that of the broader statistical community in increasing the number of members of underrepresented groups in graduate programs.
 - Doug Simpson and Kevin Corlette updated the board on the activities of the Institute for Mathematical and Statistical Innovation. The institute has implemented its plans on schedule and continues to reach out to the statistics community through ASA channels.
- The board will have its final meeting of 2022 November 18–19 at the ASA office in Alexandria, Virginia. ■



MY ASA STORY

Arinjita Bhattacharyya, Senior Scientist

I am an early-career statistician working as a senior scientist in the biostatistics and research decision sciences division at Merck & Co. My day-to-day activity involves designing clinical trials, writing protocols and clinical study reports, and contributing to the research and development of therapeutic compounds for unmet medical needs—working mainly in the early phase of clinical trials. My primary research areas are Bayesian shrinkage priors, subgroup analysis, real-world data, COVID-19–related applications, and clinical trials.

I came to know about the ASA from my seniors and professors at the University of Louisville—where I did my PhD in biostatistics—and became a member in February of 2017. My primary reason for joining was to learn from researchers in the field, collaborate, and engage in research activities.

The first time I attended the Joint Statistical Meetings was also in 2017. My PhD advisers encouraged me to give a poster presentation. I was quite overwhelmed at the massive nature of the conference, with so many parallel sessions, speakers, and attendees. It was a fantastic opportunity to interact, meet, learn, and network. I still remember the day I boarded the flight, right after giving my PhD qualifier, with a poster in hand that explained a Bayesian subgroup finding method.

The *STATtr@k* website helped me find a summer internship in 2018 at Janssen Pharmaceuticals. It also helped me gain exposure to the pharmaceutical industry and oncology therapeutics

through a project on Bayesian logistic regression modeling.

The ASA Community's Young Professionals discussion group, which I used before landing my current role, is one of many helpful resources for anyone seeking a job in the statistics field. Additionally, the ASA website is full of interesting activities and excellent opportunities. For instance, I learned about the Student and Early Career Travel Fund, which helped me attend the 2020 Women in Statistics and Data Science conference and 2021 Symposium on Data Science and Statistics.

The best thing I like about the ASA is that education and creative minds go hand-in-hand and there is so much encouragement for showing talent, whether performing at a talent show, writing songs or poems for CAUSE, engaging in mentoring activities, or judging at DataFest.

During my PhD candidacy, I was also a member of the ASA Kentucky Student Chapter, which organized seminar series and student presentations that helped me gather more knowledge about various professors' and colleagues' research and develop ideas for my thesis research.

In 2019, I went to JSM in Denver to present my thesis on Bayesian shrinkage priors. I also had the opportunity to interact with professionals from the pharmaceutical industry who were interested in hearing from me and encouraged me to apply to open positions on their end. The virtual JSM conferences during COVID-19 allowed me to present, listen to talks, and attend workshops from the comfort of home.

I was delighted to attend JSM 2022, where I was able to interact with friends, colleagues, and professors. I presented "A Two-Part Tweedie

Model for Differential Analysis of Omics Data" and participated in the Scientific and Public Affairs Advisory Committee poster competition with "Lack of Association Between COVID-19 Oral Dose Molnupiravir (MOV, MK-4482) Concentration and QTc in Healthy Participants," part of a collaborative project with colleagues from Merck.

I was happy to join the mixers organized by the International Indian Statistical Society and Biopharmaceutical Section. I also volunteered as a course monitor and chaired a session titled "New Methods with Applications in Mental Health Statistics." Additionally, the COPSS awards ceremony and invited talks were highly motivating and informative. They exposed me to various areas of statistics, which sparked research ideas. Finally, the exhibit hall was a nice place to meet representatives from a number of companies and associations and grab some gifts (i.e., swag).

Currently, I am involved with many ASA activities, including serving as part of the ASA GivesBack leadership, a program in which we foster giving back to the statistics community. I also mentor students for *ThisIsStatistics* contests and engage in judging and mentoring activities for the Philadelphia Chapter's Delaware Valley science fairs and DataFest.

The Biopharmaceutical Section's mentoring program has helped me navigate my field and channel my queries to learn more about the pharmaceutical field. My mentor has helped me deal with day-to-day challenges, maximizing my early-career years.

I look forward to remaining engaged with the ASA and attending JSM 2023 in Toronto. I also plan to advocate for data science and literacy by meeting US Senate staff in the future. ■

MORE ONLINE

If you are interested in collaborating on research activities with Bhattacharyya, connect with her on LinkedIn at www.linkedin.com/in/arinjita-bhattacharyya-48b80752.

Meet Robert Santos, US Census Bureau Director

Robert Santos's career spans more than 40 years in survey research, statistical design and analysis, and executive-level management. He previously served for 15 years as vice president and chief methodologist at the Urban Institute and directed its Statistical Methods Group. He was executive vice president and partner of NuStats, a social science research firm in Austin, Texas.

Santos has held leadership positions in the nation's top survey research organizations, including the National Opinion Research Center (NORC) at the University of Chicago as vice president of statistics and methodology and director of survey operations, the Institute for Social Research at the University of Michigan as director of survey operations, and Temple University's Institute for Survey Research as senior study director and sampling statistician.

Santos specializes in quantitative and qualitative research design, including program evaluation, needs assessment, survey methodology, and survey operations. He also has expertise in demographic and administrative data, decennial censuses, social policy research, and equity issues in research.

Santos served as the 2021 president of the American Statistical Association and is an ASA Fellow and recipient of the ASA Founder's Award (2006). He was the 2014 president of the American Association for Public Opinion Research and received the association's Award for Exceptionally Distinguished Achievement in 2021. Santos is also an elected member of the International Statistical Institute and served from 2017 to 2020 as a member of the Board of Scientific Counselors for the National Center for Health Statistics at the Centers for Disease Control and Prevention. He was a longtime member of the editorial board of *Public Opinion Quarterly*.

What about this position appealed to you?

Two aspects were very appealing. First was an opportunity to serve my country. I've always been attracted to positions whose principal role is serving others.



That's why leadership, consulting, and mentoring have always resonated with me.

Second was the opportunity to use my whole self to lead the US Census Bureau. I bring something different that transcends my 40-year career in statistics. I bring my life experience, culture as a Latino, and values, which include justice, equality, diversity, and inclusion. (I'm a JEDI!)

Over the years, I've seen that when we encourage and consider diverse perspectives, it facilitates more informed, effective research questions, research design, data collection, analysis, interpretation of results, and communicate of those results.

Describe the top 2–3 priorities you have for the US Census Bureau.

Above all, we are driven by our mission. That's why we strive for excellence. We actively seek better ways to collect, produce, and curate data of even higher

quality, relevance, and utility to meet the needs of our country. Our values include transparency, scientific integrity, independence, and objectivity.

My vision for the Census Bureau also includes embracing the principles of diversity, equity, and inclusion (DEI). Actively seeking alternative views promotes informed decision-making, which in turn leads to better methods and higher data quality and utility. Career staff grow professionally when they integrate DEI principles into their everyday work and, as a consequence, everyone gets an opportunity to advance professionally.

I seek to lead by example, enabling staff to see firsthand how leveraging our values and principles in all we do can lead to increased scientific rigor, higher data quality, and a more rewarding professional experience—one that prioritizes helping others.

What do you see as your biggest challenge(s) for the Census Bureau?

We have seen decreasing participation rates in our surveys and censuses in some important segments of our society. I believe it's the symptom of a deeper, fundamental challenge: building trust among those who are historically undercounted.

How do we bolster trust in segments among the historically undercounted? We need to rethink our enterprise. We must transform from a siloed set of units relying mostly on a data solicitation paradigm (e.g., survey data collection) to an integrated data-ingestion-and-curation enterprise (e.g., many sources of data supplemented with surveys and censuses). This new paradigm allows us to identify gaps in the existing data we have already compiled.

We can then focus on addressing those gaps, which means the following:

- Attending to those we measure the least often and the least accurately
- Tailoring and adapting methods and measures to be more culturally relevant
- Conducting outreach to stakeholders, local governments, and underserved communities to understand their data needs and show how Census Bureau data helps their community in public health, economic development, education and housing, infrastructure, and so on. Outreach allows us to collect more relevant data with better quality and utility.

Rebuilding trust in the Census Bureau among the historically undercounted is not a new issue. It will take time and dedication to see positive results. It needs to be approached in a focused, caring way—one that is tailored to specific audiences.

What kind of support from the statistical community do you look for?

We seek honest, constructive, continuous feedback and need diverse perspectives. We need to think differently about what we do and how we do it. That is why our career staff have designed and adopted a bureau-wide transformation and modernization initiative.

We would welcome additional fresh ideas from researchers who are outside the federal statistical system.

We also could benefit from continuous stakeholder and partner engagement. Interestingly, our modernization efforts start with getting a better understanding of how stakeholders use our data—all stakeholders. That can help us create better data products that fit the needs of the federal government and our communities. So please, help us by sharing your feedback!

Prior to your tenure, what do you see as the biggest recent accomplishment of the bureau?

Prior to the 2020 Census, I would have said using an adaptive design approach to fully digitize field operations and more effectively assign enumerators. After I was sworn in, I had the benefit of seeing some of the operational metrics results. I was astonished that the Census Bureau obliterated my greatest fears and completed the job conducting a rigorous 2020 Census. The overall results were fit for their uses of apportionment and redistricting.

I did not realize how important it was to have a high-quality list of housing units. Because of that, if the enumerators determined a housing unit was occupied, the career staff found a way to get an enumeration—from self-response, to proxy response and high-quality administrative records, to (a small amount of) imputation.

I am proud of the career staff for their extraordinary efforts and skill in pulling this off. Their dedication and resilience during this tremendously volatile and stressful period were remarkable. ■

MORE ONLINE

To learn about the Census Bureau's transformation and modernization initiative, visit www.census.gov/about/what/transformation.html.

JEDI CORNER

Finding Ada: Identifying, Engaging, and Empowering Women in Statistics and Data Science



Kelly H. Zou is head of global medical analytics and real-world evidence at Viatrix. She is a fellow of the American Statistical Association and an Accredited Professional Statistician who has held multiple officer and volunteer roles within the ASA. Currently, she is vice chair of the Methods and Data Council at AcademyHealth, with the ASA as its organizational affiliate.

The Justice, Equality, Diversity, and Inclusion (JEDI) Outreach Group Corner is a regular component of Amstat News in which statisticians write about and educate our community about JEDI-related matters. If you have an idea or article for the column, email the JEDI Corner manager at jedicorner@datascijedi.org.

Ada Lovelace Day falls on October 12 every year. According to the website Finding Ada (<https://findingada.com>) it “is an international celebration of the achievements of women in science, technology, engineering, and maths (STEM).” In terms of its purpose and outreach on and beyond Ada Lovelace Day, “it aims to increase the profile of women in STEM and, in doing so, create new role models who will encourage more girls into STEM careers and support women already working in STEM.”

One may wonder who Ada Lovelace (1815–1852) was. According to the Computer History Museum, she translated, remarked upon, and published notes that described a “stepwise sequence of operations for solving certain mathematical problems.” Thus, Ada was fondly called “the first programmer,” or rather one of the first technological innovators as a female pioneer in computation and technology.

In an article about a leadership panel in which I participated (<https://magazine.amstat.org/blog/2021/04/01/icsa>), the panelists were asked why it is important to embrace diversity, equity, and inclusion, including women. Following is a summary of their answers:

People’s backgrounds, experiences, knowledge, skillsets, mindsets, and views are diverse. When we embrace these, we can essentially broaden ourselves in all of these aspects. Without diversity, equity, and inclusion, we won’t know what we don’t



Watercolour portrait of Ada King, Countess of Lovelace, circa 1840, possibly by Alfred Edward Chalon

know. To embrace diversity, equity, and inclusion, we should engage all members of our community in a conversation about our shared vision of excellence and examine how much of this vision has not been realized in some underrepresented parts of

our community. Through such a conversation, we can recognize the need for more proactive efforts in the direction of diversity, equity, and inclusion.

Below are three suggested ways we can “find Ada” (i.e., identify and nurture female and/or other talented statisticians and data scientists from minority backgrounds) among us:

1. Member introducing a diverse member. We all know a bright and talented young person who would love to know more about quantitative disciplines. Why not suggest a name and connect with that individual as an introductory “buddy”? The senior member can function as a mentor for at least six months to a year, meeting virtually for at least an hour once a month.
2. Technical and soft-skill roadshows. Students and graduate students may be intimidated by either one-on-one conversations or panel interviews. Thus, having “mock” roadshows with senior and junior members across several universities and departments with diverse student bodies may help the latter develop ways to handle potentially stressful social interactions, such as professional negotiations, away from data analysis and software coding.
3. Diverse role models to rid imposter syndrome. Imposter syndrome is perceived fraudulence involving feelings of self-doubt and personal incompetence that persist despite your education, experience, and accomplishments. On the international stage, well-qualified diverse role models need to be celebrated so a future generation will believe they too can lead organizations and make critical contributions to their chosen fields.

The above suggestions are meant to start a conversation about how we can take action in supporting young talent; additional ideas are certainly welcome. Let’s “find Ada!”

Editor’s Note: Zou is an employee of Viatrix. The views expressed here are her own. ■

STATS FROM THE ROAD

The Spirit of Giving Back

Amanda Malloy, ASA Director of Development

I had one of those photo memories pop up on my social media feed the other day that was taken at JSM 2019 in Denver. I was struck by how much has changed since that photo was taken (and I’m not just referring to my personal boycott of pants without an elastic waist band).

There was so much I took for granted then—like seeing people in 3D, going to well-stocked grocery stores, and shaking hands. I don’t think I realized how much I craved seeing people in person until I was walking around at the DC convention center during JSM 2022.

What hasn’t changed, however, is ASA members’ desire to get involved and make a difference for the statistics and data science communities. That spirit was on full display during JSM in Washington, DC.

You—members of the ASA community—volunteered to meet with congressional staffers on Capitol Hill to show support for the Data Science and Literacy Act of 2022. You served as mentors and panelists for the Diversity Workshop and Mentoring Program and donated food for the ASA GivesBack Impact DC food drive benefiting the Capital Area Food Bank. Not to mention, the countless hours you spent volunteering for chapters, sections, committees, and special interest groups!

Another time this spirit of giving back is on full display is during the annual ASA Giving Day. Last year, 156 donors gave close to \$52,000. These donations are critical to help fund programs that improve statistics education at all levels, advocate for the profession, cultivate the



Serene Jiang, Figaro Loresto, and Amanda Malloy spend time at the food bank collection bins, part of ASA GivesBack’s Impact DC program. Photo courtesy of Drew Malloy.

next generation of leaders, and showcase the innovations and contributions statisticians and data scientists have on science and society (specific examples of these programs can be found at ww2.amstat.org/giving).

This year, ASA Giving Day is on November 18, and we will celebrate how we are leading the way for innovation through statistics and data science. Since November 18 happens to be the first day of the fall board meeting, members of the board will kick off Giving Day from the ASA office in Alexandria, Virginia, via livestream on Facebook and Twitter. As always, there will be opportunities to win prizes and help your chapter win the annual ASA Chapter Challenge.

For more information about ASA Giving Day and to sign up for a reminder to donate, visit ww2.amstat.org/givingday.

More Work Needed to Increase Racial, Ethnic Diversity in Biostatistics, Epidemiology Departments

Melody Goodman, Jemar Bather, Xiangying Chu, Marcello Pagano, Christine Plepys, and Ronnie Sebro recently published a paper titled “Racial and Ethnic Diversity Among Students, Graduates, and Faculty in Biostatistics and Epidemiology, 2010–2020”



Melody Goodman

in *Public Health Reports*. The paper describes a follow-up to their 2020 study that reviewed changes in the racial and ethnic composition of public health students, graduates, and faculty among Association of Schools and Programs of Public Health (ASPPH) member institutions.

The researchers stated that “although more Hispanic/Latino students are enrolled in and graduating from biostatistics and epidemiology departments at ASPPH member institutions, we found no change among faculty. More work is needed to recruit and retain other (American Indian/Alaska Native, Black or African American, Native Hawaiian/Other Pacific Islander) underrepresented students and faculty.”

We had a few questions for lead author Melody Goodman, who is the associate dean for research and professor of biostatistics at New York University School of Global Public Health. Goodman leads the Quantitative Public Health Data Literacy Training program (<https://grassrootscommunityfoundation.org/quantitative-public-health-data-2022>) and is the director of the new Center for Anti-Racism, Social Justice, and Public Health at the NYU School of Global Public Health. Her work focuses on educating the general public about quantitative public health data literacy.

What prompted you and the other authors to follow up on the 2020 study?

After the initial study, which looked at public health overall, we had a specific interest in biostatistics and epidemiology. Many of the co-authors are biostatisticians. We were really interested in looking at our discipline. We also know many biostatistics departments are

actively engaged in activities (e.g., summer programs, training grants) to diversify the field, so we wanted to see where things are.

What was the effect of your 2020 study on public health departments?

For public health departments, there are some promising results based on the increasing diversity of the student population. This will impact the diversity of the public health workforce.

What has been the reaction to your 2022 paper?

The paper is still quite new but has received a favorable response on Twitter and other social media, for what that’s worth.

What did you learn personally from doing this study? Did any of the findings surprise you? What most concerns you about what you found? What’s most encouraging?

I thought we would have made more progress in the last 10 years, so this study showed me that there is still a lot of work to do and we all need to be participating in these efforts. I think the increasing diversity of public health students is the most encouraging result, but there is still work to do in this area.

Your research focused on biostatistics departments in 40 ASPPH institutions. If you have discussed your results with colleagues in statistics departments and other biostatistics departments, do they report similar data?

I’ve really been discussing this work with ASPPH member institutions. There is not much benefit in comparison when we know we have work to do in this area. Instead, let’s be intentional about this work and foster collaboration instead of competition. I think this is why the work of professional organizations (e.g., ASA) plays a key role in connecting us all toward a common goal.

In the study, you noted “large-scale interventions are needed to increase pathways into public health fields for diverse students and faculty.” Describe large-scale interventions biostatisticians and data scientists can begin implementing in their departments and on campuses?

In some respects, I think we are on the right track but we need to push this existing work further.

- More postbaccalaureate programs for students who are interested in graduate work but did not complete all the undergraduate prerequisites
- Summer bootcamps that help bolster skills needed to succeed in graduate studies in statistics and data science
- Summer pipeline programs that offer supplemental training in the foundational undergraduate coursework (e.g., calculus, linear algebra)
- Graduate programs that accept coursework from summer bootcamps and pipeline programs as an alternative to prerequisites and/or supplement with their own training

In your opinion, how do we better recruit and retain underrepresented students and faculty? Why is this important?

I don't think anyone has figured this out yet just based on the data in the paper. That said, following are some lessons learned from the Quantitative Public Health Data Literacy Training:

- Create environments that are welcoming and engaging. We play music at the beginning of each session of the data literacy training and invite students to join our data party. Yes, just like the course syllabus, we spend time curating a playlist with the right songs to create the vibe we want. Racialized minorities are pushed out of STEM disciplines starting in elementary school and continuing through secondary education. It is important to create spaces for them and welcome.
- Create diverse learning environments. We have created training cohorts that are diverse but predominantly Black and Latino/a/x. We think this is crucial for foundational learning and provides a safe environment to ask questions. For departments, I think this could be translated into small learning communities (e.g., formal study groups). It can truly feel isolating when you are the only one in the

room who looks like you, and everyone benefits from diverse learning environments.

- Provide ample support for students to receive help. We often have 10 or so course assistants for the data literacy training. This is about a 10:1 student to course assistant ratio—much lower than what is seen in a typical academic environment. It also means there were 10 office hours a week for students to choose from.
- Use technology to support communication. The students and course assistants use Slack to communicate. If you need help outside of office hours, you can send a Slack message at any time and there is a whole community of class members and course assistants there to answer.
- “What I hear, I forget. What I see, I remember. What I do, I understand.” Training should be hands-on. If you go to a dance class, you expect to dance, not watch the teacher dance. The same is true for a cooking class, and the same should be true with any data science or statistics course.
- Affirm students when they have challenges. When students tell me my course is hard, I agree with them and then tell them they can do hard things.

I truly believe diversifying the field (data science and statistics) is an ethical imperative, given the implications of data in our society.

In your opinion, what can biostatisticians and data scientists do to help educate the general public about quantitative public health data literacy?

We did an iteration of the quantitative public health data literacy training (Cohort II February 2021) for the general public. It was a four-session version, with each session lasting two hours. It was one of the most rewarding experiences of my career. Those of us who have these skills have to train others. There is now a basic competency level needed to absorb the information being presented. Who better than us to provide this training to the general public?

Do you have plans to continue your research on the racial and ethnic composition of public health disciplines?

Yes, right now we are working on a paper looking at diversity in environmental sciences ... stay tuned. ■

MORE ONLINE

Download the *Public Health Reports* paper at bit.ly/3Bjy7L5.

History of Statistics: A STEM-Based Study Abroad Experience

Beth Johnson and David Holmes, University of Florida

Incorporating an international learning experience into US higher education programs has become increasingly important for creating a workforce with the ability and mindset to tackle global challenges. Inspired by *The Lady Tasting Tea*, which describes how historical motivations lie behind several key advances in statistics, we created an innovative STEM-focused study abroad program that took students to the historical beginnings of the statistics discipline in England. Based in Cambridge and London, the program had the following goals:

- Students will understand the basic historical motivations behind several key advances in statistics
- Students will develop their capacity to understand the contemporary world in the larger framework of tradition and history
- Students will learn how modern scholars, by interpreting the past, can think critically about the present and future

We visited possible venues in the summer of 2019, and the program was all set to run during spring break of 2020. However, due to the COVID outbreak, the program took place in May of 2022. Our party of 13 University of Florida undergraduate students, or “statisticians”—drawn primarily from statistics, data science, and related STEM majors—prepared by reading and taking quizzes on *The Lady Tasting Tea* and *The Seven Pillars of Statistical Wisdom*. In addition, we recommended students read *The Ghost Map*, *The Story of London’s Most Terrifying Epidemic and How It Changed Science*; *Cities and the Modern World*; and *The Theory That Would Not Die*, *How Bayes’ Rule Cracked the Enigma Code*.

Our group gathered at Heathrow Airport and was transported by coach to our hotel in Cambridge for a four-night stay, which commenced with a welcome dinner that evening. A science-themed guided walking tour of Cambridge on our first full day introduced students to the history of both the city and university, and our guide was able to access Pembroke College to show the students a bit of student life.

The program focused on the following statistical and data science themes:

Cryptography

The evening before our all-day visit to Bletchley Park, the students attended a lecture about the history of codebreaking. At Bletchley, we learned in detail how Alan Turing and the team of statistical codebreakers were able to crack the Enigma code and shorten World War II. Highlights were visiting the actual huts, seeing a working replica of a Bombe machine, and using an authentic Enigma machine—the very one used in the movie *The Imitation Game*. Bletchley Park’s newest exhibit, *The Art of Data: Making Sense of the World*, demonstrated ways the codebreakers visualized data alongside contemporary examples, which included sports analytics and cybersecurity.

Experimental Design

Rothamsted Research is where Sir Ronald Fisher conducted his historic agricultural experiments, giving birth to experimental design and the concept of randomization. We attended talks about the history of statistics at Rothamsted, their current research activities, and how we can access and use their long-term data. After lunch, we viewed their classical experiments in the Broadbalk and Park Grass fields, experiments that have been running since the 1850s.

Gathering Information

The Royal Statistical Society, founded in 1834, is one of the world’s most distinguished and renowned statistical societies. Not only is it the learned society for statistics in Britain, but it also promotes statistics for the public good.

Moving to London for the second half of the program, we made an afternoon visit to the Royal Statistical Society central office to hear about the role statistics and data analysis can play in society. We held archival material such as the original letter admitting Florence Nightingale, the first female, into the Royal Statistical Society and a letter written by her to William Farr in 1871.

We then took a mini tour of the immediate area given by the Royal Statistical Society archivist, including the tomb of Thomas Bayes in Bunhill Fields.

Early Computers

We spent the following morning at the Science Museum, paying particular attention to the Winton Gallery. We looked at some of the earliest computing devices, including Babbage's Analytical Engine, to learn how innovation in information and communication technology has transformed our lives.

Sports Analytics

That afternoon, we visited Fulham Football Club to hear a talk by the club's sport scientist, titled "Sport Science in Elite Sport: The Relationship Between Load and Injury Risk." This opened our eyes to the enormous amount of data collected by football clubs, and Fulham in particular, on the club's players to monitor each individual's workload and injury history.

Archival Research

The National Archives in Kew, London, is the UK government's official archive, containing 1,000 years of history—from the *Domesday Book* to the present with records on parchment and paper scrolls to digital files. Here, we heard talks about the UK census and related surveys, the collection of statistics throughout the British Empire, and intelligence records for the Second World War period. Throughout, we viewed relevant documents and records such as maps depicting the population of England in 1801 and Colonial Office records.

Data Visualization

Moving to the Florence Nightingale Museum that afternoon, we saw how statistical diagrams were first used in the study of deaths and diseases during the 1850s and heard a talk about the life of the famous nurse and early statistician.

Our final day was a "free" day in London. Almost everyone went on a river boat trip to Greenwich and took a guided tour that included Greenwich Park, the National Maritime Museum, and the old Royal Observatory, where the guide noted that the idea of a normal curve had its beginnings in calculating combinations of observations by astronomers. Our trip ended with photos of everyone standing on the Prime Meridian.

For more information about the STEM-based study abroad experience, visit bit.ly/3BG6oUR. ■

SIGNIFICANCE HIGHLIGHTS

August Issue Features Data from Middle Ages, Data Viz Heroes



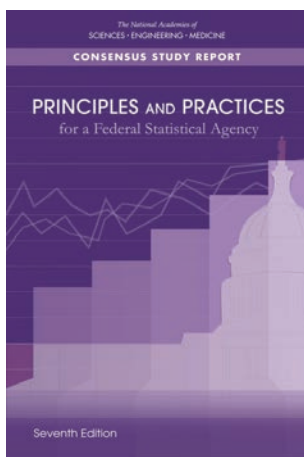
Digging for data from the medieval ages occupies James Walker, John Lee, and Stephen Broadberry in the August issue of *Significance*. They use ancient statistical documents, including arguably the most famous of them all—*Domesday Book*, published in 1086—to painstakingly reconstruct the medieval economy. Some of the statistical niggles they face are still thwarting economists today.

Also in the August issue:

- What really makes one higher education institution "better" than another? University league tables are big business built on a flimsy statistical approach, argue Adrian Barnett and Elizabeth Gadd.
- Did the dogs of Mexico City really stop their owners from dying of COVID-19? Isaac Núñez shares an astonishing tale of causal questions, selection bias, and confounding.
- Domestic abuse victims struggled to contact the police during the COVID-19 pandemic. Using internet search data, Dan Anderberg, Helmut Rainer, and Fabian Siuda found an increase in domestic violence several times larger than that suggested in official police records.
- Data visualization fans need no introduction to David McCandless, data journalist and author of the bestselling books *Information Is Beautiful* and *Knowledge Is Beautiful*, as well as, most recently, *Beautiful News*. He is also one of the media's most called-upon advocates for statistics as art. In an interview with Anna Britten, he talks about his process, data visualization heroes, and why communication is all about context.

Access the digital version of *Significance* through your membership portal, or download and read the magazine on the go with our iOS and Android apps (bit.ly/3xNOPB8). Print issues will be mailed to subscribers soon.

Significance is online at www.significancemagazine.com.



Establishing and Maintaining Trust in a Federal Statistical Agency: A Discussion from the National Academies

Robert Groves, with ASA Director of Science Policy Steve Pierson



Robert Groves

is the chair of the Committee on National Statistics and served as director of the US Census Bureau from 2009–2012.



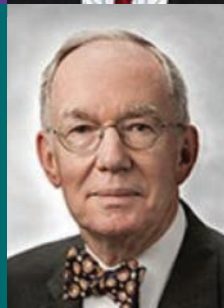
Hermann Habermann

served as chief statistician of the United States from 1988–1992. He was also deputy associate director for budget at the Office of Management and Budget, deputy director and chief operating officer for the US Census Bureau, and director of the United Nations Statistics Division.



James Lynch

was director of the Bureau of Justice Statistics from 2010–2012.



Charles Rothwell

was director of the National Center for Health Statistics from 2013–2018, capping a career in federal service that started in 1987.

The Office of Management and Budget, Congress, and National Academies deem professional independence necessary for an agency to establish trust in its products. Professional independence includes an agency's autonomy over its budget, information technology, hiring, publications, contracting, and data collection and analysis.

For their spring 2021 release of the seventh edition of *Principles and Practices for a Federal Statistical Agency*, the National Academies Committee on National Statistics hosted a public webinar that included a discussion between committee chair Robert Groves and Hermann Habermann, James Lynch, and Charles Rothwell. To further the understanding of the importance of statistical agency autonomy, the editors at *Amstat News* include the autonomy portions of this wide-ranging discussion below.

To emphasize the importance of an agency's autonomy, the ASA is also sharing stories collected from former statistical agency leaders and staff describing instances in which the professional autonomy of their agency was challenged or they had to stand up for the professional independence of their agency. If you would like to share a story, please contact ASA Director of Science Policy Steve Pierson at spierson@amstat.org.

ROBERT GROVES: It is not an overstatement that official government statistics are one of the building blocks of a democracy. They are indeed how an informed citizenry is nourished in a democracy. What makes the whole process work is the statistics being viewed as credible. And how is credibility earned by a statistical agency? Because of the technical nature of the work, we believe credibility derives largely from trust. So how does one build trust? Trust is built, we believe, by the agencies following the wisdom compiled in *Principles and Practices*.

Principles and Practices do not review laws or regulations. They don't have statutory authority. In some sense, however, they're even more powerful than laws, if they are adopted as a code of ethical standards of behavior inside the agency. If the staff of statistical agencies adopt these as a way of living their professional lives, the benefits of official statistics can be derived.

We have lived through a period in which these codes of ethics have been the life rafts of US federal statistics. There are heroes among us right now, the civil servants and the technical staff who have lived these ethical principles under some duress.

For those of you who are new to the statistical agencies, I encourage you to read *Principles and Practices*. They offer guidance on how to behave in real-life, practical, day-to-day situations. Ideally, they describe the values that underlie the work cultures of all the US federal statistical agencies.

Let me now turn to our panel of deeply experienced former members of the federal statistical agencies who, collectively, have decades of experience in living the *Principles and Practices*.

Thinking over your time in federal statistical agencies, were there occasions when you found yourself drawing on *Principles and Practices*?

JAMES LYNCH: Just prior to my time at the Bureau of Justice Statistics, there was a bit of a scandal, which was the firing of Bureau of Justice Statistics Director Larry Greenfeld. Greenfeld stood up to those at the US Department of Justice who wanted to push a certain set of adjectives in a press release concerning interactions between the police and African Americans. Greenfeld was overseeing the release of findings from the National Crime Victimization Survey, specifically the Police Public Contact Supplement, which focuses on the interaction between citizens and the police.

The Police Public Contact Supplement showed that African Americans were not being stopped disproportionately but, once stopped, the kind of force they were subjected to was disproportionate. The Bureau of Justice Statistics laid this out in a report and a press release, resulting in the push-back from various people within the associate attorney general's offices and Greenfeld's firing.

And so, when I came to the Bureau of Justice Statistics, this incident was in people's minds, which was a benefit to me. People were sensitive to the independence of the Bureau of Justice Statistics as a statistical agency because the

Five Principles

Principle 1:

Relevance to Policy Issues and Society Federal statistical agencies must provide objective, accurate, and timely information that is relevant to important public policy issues.

Principle 2:

Credibility Among Data Users and Stakeholders Federal statistical agencies must have credibility with those who use their data and information.

Principle 3:

Trust Among the Public and Data Providers Federal statistical agencies must have the trust of those whose information they obtain.

Principle 4:

Independence from Political and Other Undue External Influence Federal statistical agencies must be independent from political and other undue external influence in developing, producing, and disseminating statistics.

Principle 5:

Continual Improvement and Innovation Federal statistical agencies must continually seek to improve and innovate their processes, methods, and statistical products to better measure an ever-changing world.

Ten Practices

To fulfill these five principles, the following 10 practices are essential for statistical agencies to adopt:

1. A clearly defined and well-accepted mission
2. Necessary authority and procedures to protect independence
3. Commitment to quality and professional standards of practice
4. Professional advancement of staff
5. An active research program
6. Strong internal and external evaluation processes for an agency's statistical programs
7. Coordination and collaboration with other statistical agencies
8. Respect for data providers and protection of their data
9. Dissemination of statistical products that meet users' needs
10. Openness about sources and limitations of the data provided

Greenfeld episode was considered in many ways a scandal. *Principles and Practices* also changed as a result of it.

In the wake of Greenfeld's firing, language was added to *Principles and Practices* to the effect that directors of statistical agencies should have the authority to release statistical information, including press releases and documentation without prior clearance. This was a real advantage to me when the press office, which wanted to control the message coming from the US Department of Justice, pushed back on Bureau of Justice Statistics releases. Having *Principles and Practices* and the idea that the Office of Management and Budget was supportive of it was very influential. The press folks backed off.

Later, the Obama administration science adviser, John Holdren, issued a scientific integrity memo that went around to all the departments in the executive branch asking for policies for the treatment of science in their agency. Like every science agency, the Bureau of Justice Statistics had to respond to it and, in doing so, we relied heavily on *Principles and Practices*. As a result, the US Department of Justice lawyers simply accepted our position, which was not the case for other agencies throughout the department. Having *Principles and Practices* to rely on was helpful to me in a number of ways.

CHARLES ROTHWELL: In the 1970s, before *Principles and Practices*, Peter Henle, a member of my extended family, was the chief economist at the Bureau of Labor Statistics and an associate commissioner. With Harold Goldstein, he was responsible for the publication of unemployment data—among other things—during the Nixon administration. While unemployment seemed to be declining, it was not in a significant way and so the Bureau of Labor Statistics did not report it as a decrease. This displeased the president, as documented in a variety of memos and the Nixon tapes, which in turn led to Goldstein retiring and Henle leaving the Bureau of Labor Statistics. The incident is what brought about many of the protections the Bureau of Labor Statistics now enjoys. In the next administration, Henle came back in a senior position, which included responsibility for the Bureau of Labor Statistics.

Years later, I came to the National Center for Health Statistics as an associate director responsible for IT and data dissemination from a statistical unit within a state health department. I had the occasion to share with Henle all the great systems we were going to be developing.

Keeping in mind this was before *Principles and Practices*, I explained we were having the secretary of the department help us release our data and make

a statement in that release. There was silence. And then Henle stated, "I don't think you're doing the secretary a service or your agency a service. You need to be separate from a policy perspective, for both the department's strength and your strength." I really hadn't appreciated that point.

Not much later, the director of the National Center for Health Statistics handed me a copy of the brand-new publication, *Principles and Practices*, and there it was in black and white for me to understand. I learned from that, and I'm very much a supporter of *Principles and Practices*.

HERMANN HABERMANN: I would like to suggest three examples of how the *Principles and Practices* were relevant in my own experience. When I was deputy director at the Census Bureau, I was informed it had been decided to move the publication date of the report on the pervasiveness of poverty in the United States until after the election. I replied that while those above me had the authority to do that, I would have to resign to protest what I saw as the manipulation of official statistics for partisan political purposes. Official statistics should be independent of partisan politics. In the end, the date remained unchanged and I would like to think the argument about professional independence and the importance of credibility by the public in that belief had an impact.

The second one illustrates the importance of leadership. When Janet Norwood was commissioner of the Bureau of Labor Statistics, the agency was caretaker of a database on workplace accidents for the Occupational Safety and Health Administration. The Senate Labor Committee wanted to examine the microdata. When the data was collected, the Bureau of Labor Statistics told the individual companies the data they supplied would be confidential. The Bureau of Labor Statistics informed the committee that, because of this, they could not release the data.

It is not easy to deny a committee of the US Senate, and some tense negotiations followed. At that time, the Bureau of Labor Statistics did not have the confidentiality laws protecting its data it now enjoys. It did have the leadership of the head of the Bureau of Labor Statistics, who believed the credibility of the agency was at stake. In the end, the Bureau of Labor Statistics prevailed in its arguments about preserving the credibility of the agency.

Finally, when I was at the Office of Management and Budget, the oil embargo was underway and the Justice Department suspected collusion among the oil companies, driving up gasoline prices. Knowing the Energy Information Administration had data

from the oil companies on their pricing structure, the Justice Department requested it. The Energy Information Administration pointed out that the data was collected under a pledge of confidentiality and therefore it could not provide the data. The Justice Department replied that it interpreted the law differently.

The Energy Information Administration could have referred to *Principles and Practices* and argued on the principles of independence and credibility and the public impact of not protecting their confidentiality pledge. Instead, they argued on a point of law and lost. As a result of that decision, the Energy Information Administration had to change their data collection program to indicate that, in certain cases, they could not protect the confidentiality of oil company data.

ROBERT GROVES: Let me pick up on being separate from policy. Principles one and four speak to independence from political influence but also the need to produce statistics that are policy relevant.

How do you navigate the boundary between being policy relevant and not being a policymaker or promoter?

CHARLES ROTHWELL: We need to be policy relevant. Our job is to inform the debate and not enter into the debate. There's a great difference. During the Obama administration, the major piece of legislation enacted almost immediately was the Affordable Care Act, or Obamacare. It took several years for it to take effect, at which point everyone was very interested in what its impact would be.

The National Center on Health Statistics had been collecting data on health insurance since about 1959 through the National Health Interview Survey. Because of that interest, our proposal to expand the National Health Interview Survey to be able to cover some of the major states on a quarterly basis was approved and we had the revised survey in the field on schedule.

Several weeks before we were going to release the first quarterly report, I received a phone call from the White House, wanting to know details. I explained why it was not in their best interest to have their fingerprints anywhere on what the release stated. I offered to include them in the briefing to the secretary's office 24 hours beforehand but also recommended against it. They agreed.

ROBERT GROVES: It seems clear that if a statistical agency enters the debate and is viewed by the public as engaged in policymaking, the agency's credibility is threatened. If there's a change of power

or if the ideology of a new administration goes in another direction, the agency is tainted by memories of a policy position, and that's why staying policy neutral is so important.

Let me turn to the notion of leadership that has been brought up. Of course, it is not just the head of the agency who can exert leadership on these ethical codes. Sometimes, it's someone fairly low level in the organization who evokes these codes of ethics and says this is not right.

HERMANN HABERMANN: That's absolutely right. A critical responsibility of the head of the agency is setting the culture. *Principles and Practices* have to be more than some ideas in a book. Those ideas have to be embedded in the way an agency operates every day. It echoes what you just said before, Bob, and that's part of the responsibility of an agency head. The person in charge of the agency has to foster that culture.

I would also echo your point that there is an ethos for statistics agencies, a set of guiding principles and beliefs. I think most people work in a federal statistical agency because they believe reliable statistical information is fundamental to a democracy. And the *Principles and Practices* support that ethos. And as you pointed out, it has to be throughout the agency, not just the leadership.

The evidence suggests that, increasingly, we find many of those in power do not share this ethos. They believe in making up the data to fit their narrative. We can waive the *Principles and Practices* at them, but will this be enough? We learned in the last administration that an entire statistical agency can be physically moved and its effectiveness damaged fairly easily. I am not certain we have paid sufficient attention to how we will maximize the likelihood of ensuring official statistics will retain its credibility and quality. Perhaps that is something the Academy can think about.

In considering the future of the *Principles and Practices*, there is another issue we might think about. As we have discussed, the private sector is an increasingly important player in providing data to federal statistical agencies and alternative sources of statistical information to the public. Moreover, the introduction of new technologies is both an opportunity and a challenge. The *Principles and Practices* were developed in a world in which federal agencies were the dominant players and providers of statistical information. That world no longer exists. A major question for us now is how to adapt the *Principles and Practices* to this new world.

The difference between the public and private sector has been characterized in the following way: In the public sector, institutions may only do what they have been permitted to do, while in the private sector, institutions may do whatever they wish that has not been explicitly proscribed. If the *Principles and Practices* are to remain a useful guide in building our ethos, we must understand how to build a new *Principles and Practices* that understands this characterization.

ROBERT GROVES: Let me take that up, slightly shaped: Do you think *Principles and Practices* and the existing laws provide enough to protect the agency's integrity going forward or do we need more? Is new legislation required to undergird the independence of the statistical agencies?

CHARLES ROTHWELL: Let me start with *Principles and Practices*. I think from a statistical perspective, internally for our agencies, they are both necessary and sufficient. However, as we're dealing with our departments, the executive branch, Congress, and the public, I think *Principles and Practices* are still necessary, but not sufficient. Yes, the OMB directives are helpful, as are the existing specific laws in place to protect certain statistical agencies, as well as the Confidential Information Protection and Statistical Efficiency Act. But we need more, and I have several suggestions.

If the statistical agencies are going to be able to seamlessly work together, which the pandemic clearly demonstrated we need to do, the visibility of the Office of Management and Budget office of the chief statistician needs to be raised and there should be legislation to better facilitate statistical agencies working together. I believe the federal statistical agency heads should report directly to the chief statistician—they can also report directly to the head of their host agency—they should be appointed in a similar way, and they should all have the proper protections. I also believe there should be an innovation fund, perhaps out of the office of the chief statistician, to fund the research for advancing government statistics.

In short, my argument is not creating laws to protect us. I'm arguing for legislation that allows us to work better together; to modernize how we do business—both decentralized and centrally—and to have a senior person in OMB who guides us, holds us accountable, and moves us into the future.

HERMANN HABERMANN: Unfortunately, when we look around the world, and in our own

country, the production of reliable, objective official statistics has been under assault. One example in our country has been the proposed addition of a citizenship question on the decennial census. The manipulation of the Census Bureau in this case for political purposes is well documented. While the question was not added to the census, the attempt caused damage to the Census Bureau and may have affected the response rate. While striking the question, the Supreme Court did not base its decision with any reference to what is contained in the *Principles and Practices*, but because of technical violations by the administration.

Unfortunately, the willingness by political leaders to ignore fundamental principles of official statistics as codified in *Principles and Practices* (and other relevant codes) is not unique. My concern is what kinds of mechanisms are we going to have to push back? The fight against the citizenship question took an enormous effort on the part of many parties. In the end, the decision to eliminate the question was only five to four. The *Principles and Practices* are necessary but they do not seem sufficient.

As I mentioned before, there are increasing cases in which official statistics are being manipulated for partisan political purposes. Too often, there's a disregard for these principles by those who are in political power. That's the difficulty. We believe in the principles, but not everyone else does.

You also raised the question about legislation undergirding agency independence. Federal statistical agencies derive their authority and resources from the US government and are part of that government. I don't see these agencies becoming independent from the authorizing, budget, and oversight roles of Congress. What I think many of us would like to see is professional independence. Legislation that would undergird the professional independence of statistical agencies is certainly needed.

JAMES LYNCH: Considering I became director of the Bureau of Justice Statistics with no previous experience in a statistical agency, the most important thing about *Principles and Practices* and the statistical community is that they socialize you. A person can come in fairly ignorant of the idea and importance of a statistical agency's independence and the delicate arrangements supporting independence. You get indoctrinated into the statistical system through your new colleagues in the agency and the system and you begin to think the way *Principles and Practices* want an agency head to think.

We've seen the weakness of laws in recent years without the courage of people standing behind

them. That courage is based on custom, so I don't know laws will help. I think putting forward a plan for how a statistical agency or a statistical system can undergird and preserve a democracy, along with an understanding of it, will give people the courage to quit.

The courage to quit is what we've always had. One of the pillars of this system is that people understand how you're supposed to behave and why you're supposed to behave that way. And when people do not allow you to behave that way, you quit. You quit visibly and in a noisy fashion. That kind of courage is what undergirds all of these things. So, I think the question is not to get a law but to ask, how do you inculcate that culture into the people who take these positions?

ROBERT GROVES: Should a statistical agency have the authority to collect information that is in its purview?

CHARLES ROTHWELL: The Centers for Disease Control and Prevention, for a long time, was not able to collect information on firearm-related morbidity or mortality. The National Center for Health Statistics has no such restriction so, when I was asked why I was collecting such information, I pointed out the absurdity of publishing all mortality with cause of death except for those related to guns and that not providing any mortality data for the United States wasn't an option.

The National Center for Health Statistics collects a lot of very personal information in our health and examination survey, called NHANES, which could be politically sensitive. The National Center for Health Statistics also has the Family Growth Survey, which is very important for informing us about changes in sexual practices and current intent on families having more children. Seldom have we heard you can't collect this information. Why? Because, as a federal statistical agency, folks know their personal information will be protected and the reports generated from their data will help form evidence-based policy decisions to help improve lives.

JAMES LYNCH: The decision to collect or not collect information (when it is yours to make) is a bit more complicated than the decision to release information once collected. In considering what information to collect or not collect, it's important to consider the end result and the cost and benefit for the statistical system writ large.

When I was at the Bureau of Justice Statistics, many gun violence researchers pushed hard to get

information on gun ownership in the National Crime Victimization Survey. After considerable thought, I came down on the negative side because I was convinced of three things. First, if we put that on the National Crime Victimization Survey, we would no longer have a National Crime Victimization Survey, or maybe even a Bureau of Justice Statistics, because political winds were blowing that way. Congress, at that time, strongly discouraged data collection on gun use and ownership whenever it was attempted. Second, I worried how the addition of such questions would affect the National Crime Victimization Survey response rates. Third, I thought they could get the information they needed elsewhere.

HERMANN HABERMANN: As I said, I do not think Congress is going to let the agencies have that kind of autonomy. Nevertheless, statistics agencies must continue to review and address the relevance of the information they collect—and now in a much quicker timeframe. The delegated authorities agencies now have do not allow them to respond adequately to these changing needs of society. The agencies need to be allowed more leeway from the Hill to better track societal changes and needs.

It is nonetheless important to remember the other side of the coin of increased autonomy of statistical agencies. No one elected anyone in the statistical agencies. Currently, there is a political process to, hopefully, reflect the public good in determining if, for example, poverty statistics are more important than crime statistics. If statistics agencies were truly independent, where would the creation of that public determination come from?

ROBERT GROVES: Thank you for this rich discussion and to the National Academies Committee on National Statistics for a seventh edition of *Principles and Practices*.

For the readers, especially those of you who may be new to the statistical community, I invite you to read *Principles and Practices for a Federal Statistical Agency*. They define how we should behave professionally. They define a set of aspirations that, if we all achieved them, would produce greater trust in statistical agencies, more ubiquitous credibility given their statistical products, and a support for democracy in unparalleled ways. So, I hope you got a flavor of how you, day to day, can use *Principles and Practices* to guide your own decisions.

To read the seventh edition online, visit <https://nap.nationalacademies.org/read/25885/chapter/1>. ■

MORE ONLINE

Watch a video of the public webinar at bit.ly/3UbPKVK.

Read a recent paper by ASA staff and leaders of the federal statistical community about agency-specific statutory protections for autonomy at bit.ly/3RNVZNM.

STATtr@k

#undergradsatJSM:

Why Undergraduate Students Belong at the Joint Statistical Meetings

Jana Asher, Associate Professor and Director of Statistics Education, Slippery Rock University



Jana Asher

Almost four years ago, I interviewed for an academic position at a university in a small, rural town about an hour north of Pittsburgh. The university, itself, was mid-sized—about 8,000 students—and only boasted a few PhD programs in education and health sciences. I interviewed for a mathematics and statistics department, where there were only two statisticians working alongside 10 mathematicians, most of whom had theoretical foci. As a decidedly applied statistician, I wondered how I would fit in.

I had previously taught for two years at Montgomery College in Takoma Park, Maryland, where the students were incredibly diverse in terms of race, ethnicity, socioeconomic status, stage of life, disability status, etc. If there was a category of marginalization, there were students to fill it. I loved the environment and the students.

At Slippery Rock University of Pennsylvania, a school within the Pennsylvania State System of Higher Education and where I was to interview, the students were predominantly from rural, conservative areas of western Pennsylvania, and almost 90 percent of them identified as white.

I went to the job interview and fell in love with the students, environment, and university mission. As a teaching-oriented institution, students come first and research and service second. Research tends to focus on work our predominantly undergraduate population can participate in, and internal grants are available to allow us to pay students for their work. As for those students, a large percentage of them are the first in their families to attend college, and many come from challenging socioeconomic backgrounds.

At Slippery Rock, I feel I can make a difference in multiple ways—from challenging students' assumptions to exposing them to new possibilities. Most importantly, many of my students simply don't believe they are good enough to apply to graduate school, a summer internship program, or an especially interesting job. Mentoring those students—and seeing them succeed—absolutely, unequivocally makes my four-courses-a-semester teaching load worth every hour of tedious grading required.

My statistics colleagues and I also invest a great deal of time providing students with opportunities outside the classroom, from our statistics club to career guidance to the topic of this article. When my colleague Woosuk Kim decided to work with three students to create a poster for this year's JSM, I encouraged several of their classmates to go to the meetings and support them. All together, we shepherded six undergraduate students, and the experiences they had were worth every penny spent.

Faculty members who interact predominantly with graduate students might wonder what an undergraduate student could get out of JSM. Aren't the talks over their heads? Of course, there are technical talks that won't appeal to undergraduate students, but there are also talks about statistics education, public policy, JEDI-related issues, and careers in statistics. Every one of my students who attended JSM, including the rising sophomore student, reported finding interesting talks to attend. They also, with our encouragement, attended social events, toured the exhibit hall, and spoke with senior statisticians about the field, their own work, and their aspirations. I am grateful and delighted that every person they interacted with was friendly and welcoming. This is, without question, a convivial environment for undergraduates, where their interest in statistics is appreciated and valued.

But the most important question is, did the students appreciate and grow from the experience? I don't think it is an exaggeration to say they loved it. Rising sophomore Rose Resnick says, "I attended JSM with five other undergrads from Slippery Rock University. As the least-experienced member of our group, I was intimidated by the Joint Statistical Meetings. How could I understand and communicate with those who had been working in the field for decades? After getting my bearings, I realized I would be accepted no matter my knowledge level, as everyone was excited to see me there and educate me on future internships and other opportunities. There were also talks at the more introductory level on a variety of subjects. Poster presenters were happy to explain their research in a way I could understand."

Other students were equally happy with their experiences:

I gained so much from attending JSM! I got the opportunity to market myself to possibly some of my future employers.... At JSM, there was something for everyone, whether you are looking for a job, internship, or statistical software package. Also, I got the opportunity to present some of my research that I have been working on throughout the past year. This gave me the chance to present and talk to statisticians about my group's work, as well as get suggestions for the future! I was happy to see the amount of diversity within statistics that I wish I would get to experience more often. The whole time at JSM, I felt so welcome, and everyone was so inviting. Honestly, I thought as underclassman many would just disregard us, but if anything, they were just more impressed. I was happy to attend JSM and I definitely will be going to Canada next year!

– **Alyssa Kasierski, rising senior**

Attending JSM has helped me to better network with other people involved in the statistical community. I have had amazing conversations and received extremely helpful advice from people who have been in my shoes. I loved attending the different talks and presentations about diverse aspects and components of statistics. Some of them I had not even considered would use statistics! I especially loved all the opportunities to meet and get to know others during an awesome dance party. Who knew statisticians could groove! I will absolutely be in attendance next year!

– **Rhiannon Helgert, rising senior**

Attending JSM was such a great experience! The conference offered many opportunities to explore my interests in statistics by attending professional speakers, networking events, and expo booths. Before JSM, I was unsure what career path I wanted to pursue in statistics, but after attending several events and talking with graduate students and professionals in the field, I have a better understanding of what my options and interests are past graduation. Also, I was able to present work from the past year with my research team. This was a great experience because I was able to discuss our work with other statisticians. I was surprised to see how approachable everyone was at JSM, as well. As a result, I met many helpful individuals that were able to motivate me and steer me in the right direction. I am so happy I was able to attend JSM this year, and I am looking forward to attending JSM 2023.

– **Elijah McClymonds, rising senior**



Front, from left: Alyssa Kasierski, Rhiannon Helgert, and Rose Resnick; back, from left: faculty member Jana Asher, Elijah McClymonds, Aran Bybee, Alyssa Hilliard, and faculty member Woosuk Kim

JSM has given me the opportunity to get advice from many statisticians who took different paths to achieve successful careers. Whether it was advice on things to do early in my career or on getting a PhD, it was all valuable and gave me a different perspective. I also got the chance to talk to many current PhD students, which was nice to hear about their research and experiences. Attending the Caucus for Women in Statistics Reception and Business Meeting was inspiring and empowering. Hearing Dr. Donna Brogan, the founder of the CWS, talk about the obstacles that caused her to create the organization was an experience I won't forget. It was also nice to hear how much progress has been made to make the field more equally accessible. Overall, attending JSM was a valuable experience that solidified my ambition to be a statistician who contributes to the greater good. Being able to interact and make connections with many esteemed statisticians from all over the world was an experience I will not forget, and I had a lot of fun at all the events!

– **Alyssa Hilliard, rising senior**

Undergraduate statistics faculty are not just educators; they are the frontline creators of our community. Whether our students end up going into industry, finance, government, nonprofit employment, or graduate school, they are the future of this profession. When we stop thinking about our job as classroom-based and start thinking more holistically about our students, we can see how nurturing all aspects of student development enhances not only their job prospects but also the entire field of statistics. We allow our students and our association to thrive when we involve undergraduate students in professional societies, encourage them to pursue research opportunities and internships off our campuses, bring real data and real societal problems into our classrooms, and encourage their attendance at professional conferences. #undergradsatJSM ... pass it on! ■



Claire McKay-Bowen chairs a session, "Expanding Access to Administrative and Survey Data for Public Policy Decision-Making," at JSM 2022.



First-time JSM attendees participate in an orientation session to learn how to make the most of their experiences.

JSM 2022: TOGETHER AGAIN

Ming-Hui Chen, 2022 Program Chair

JSM 2022 was held in person in Washington, DC, August 6–11, and was perhaps our first big in-person, post-COVID-19 meeting as a community. One invited speaker wrote to me and said, "I really enjoyed the conference and interactions with the audience." Another wrote, "... [It] was a really excellent meeting. I thoroughly enjoyed being at an in-person JSM again!"

ASA President Kathy Ensor set the theme for JSM 2022 as "Statistics: A Foundation for Innovation." Due to the work of the program committee, we had many paper sessions, panel sessions, lectures, and roundtables to attend, and most were closely related to Ensor's theme. Overall, we had a strong scientific program and another successful JSM.

Plenary Talks and Lectures

JSM featured four plenary talks and four named lectures, which covered a spectrum of topics such as the foundations of statistics, importance of statistics in education, methods and open problems for observational studies, extreme conditional quantiles, multivariate quantiles, and pattern graphs for missing data. There were also talks and discussions about how to use biostatistical methods and team science in clinical practice and how to combine information from multiple data sources to assess race-ethnic health disparities.

JSM BY THE NUMBERS

- 5,000+ attendees
- ~ 2,400 ASA members
- 1,000+ students
- 500+ first-time attendees
- 475 CE registrations
- 65 exhibiting companies
- 562 sessions
- 44 roundtables
- 2,734 presentations
- 142 speed presentations
- 371 poster presentations



Dylan Small (Wharton School of the University of Pennsylvania) delivers his Medallion Lecture.



Trivellore Eachambadi Raghunathan (University of Michigan) presents the Monroe G. Sirken Award Lecture.



Kimberly Flagg Sellers (Georgetown University) speaks during JSM 2022's first Diversity Workshop and Mentoring Program meeting. Photo by Eric Sampson/ASA

Plenary Lectures

- ASA President's Address and Awards, Katherine B. Ensor, "Celebrating Statistical Foundations Driving 21st-Century Innovation"
- ASA President's Invited Address, Reginald DesRoches, "The Importance of Statistics in a Liberal Arts Education"
- Deming Lecture, David Banks, "Deming and the Industries of Today"
- COPSS Awards and Distinguished Achievement Award and Lecture, Nancy Margaret Reid, "Likelihood and Its Discontents"

Named Lectures

- COPSS Elizabeth L. Scott Lecture, Madhu Mazumdar, "Biostatistical Methods and Team Science: Generating Evidence for Optimization of Clinical Practice"
- Medallion Lectures:
 - Dylan Small, "Protocols for Observational Studies: Methods and Open Problems"
 - Huixia Wang, "Extreme Conditional Quantiles"
- Noether Lectures:
 - Yen-Chi Chen, "Nonparametric Missing Data: Pattern Graphs"
 - Marc Hallin, "From Multivariate Quantiles to Copulas and Statistical Depth, and Back"
- Monroe G. Sirken Award Lecture, Trivellore Eachambadi Raghunathan, "Combining Information from Multiple Data Sources to Assess Race-Ethnic Health Disparities"

Introductory Overview Lectures

There were also four well-attended introductory overview lectures on four distinct, diverse, and emerging topics of current interest in statistics, including computational advertising, sports analytics, the interface between randomized controlled trials and real-world studies, and statistics and networks.

- On Sunday, David Banks of Duke University discussed statistical challenges in computational advertising and Nathaniel Stevens of the University of Waterloo presented on experimental design in computational advertising.

All photos in this article
by Olivia Brown/ASA,
except where noted.

- On Monday, Mark Glickman of Harvard University introduced the basics of measuring competitor strength and evaluating player contribution, while Jun Yan of the University of Connecticut talked about sports analytics beyond performance evaluation. Katherine Evans of the Washington Wizards and Guanyu Hu of the University of Missouri served as discussants.
- The third IOL took place Tuesday and featured Jie Chen of Overland Pharmaceuticals, who talked about the interface between randomized controlled trials and real-world studies. Weili He of AbbVie and Mark Levenson of the FDA served as discussants.
- On Wednesday, Eric Kolaczyk of Boston University (now McGill University) gave a quick survey of statistics and networks, while Purnamrita Sarkar of The University of Texas at Austin presented “Through the Lens of Graphons: An Examination of Models, Inference, and Uncertainty Quantification.”

Late-Breaking Sessions

JSM included two late-breaking sessions this year. One session, “Accelerating Transparency in National Statistics,” was organized by Michael L. Cohen of the Committee on National Statistics. This session was timely, as there is a great need to update statisticians within statistical systems on methods that can improve the process of conducting and disseminating statistical products from national surveys.

The second session was organized by Samantha Tyner of Tritura Information Governance and titled “Algorithmic Bias and Public Policy.” A panel of data scientists; attorneys; and other experts from industry, academia, and government discussed the complex web of issues at the intersection of artificial intelligence and public policy. This panel also discussed recent legislation concerning algorithmic bias and how to measure, mitigate, and prevent it.

Memorial Sessions

During every JSM, we memorialize statisticians who had a major effect on our field and recently passed away. This year, we



Maggie Johnson of the NASA Jet Propulsion Laboratory discusses her poster, “Forward Model Emulation and Computationally Efficient Atmospheric Retrievals for NASA’s Microwave Limb Sounder.”



JSM Opening Mixer attendees narrowly avoid concussions as a game of the perennially popular “giant Jenga” comes to a dramatic end.



Byron Jones (Novartis) teaches “Practical Considerations for Bayesian and Frequentist Adaptive Clinical Trials,” a Professional Development continuing education course.



JSM attendees participate in roundtable discussions over lunch.



Former ASA President and current US Census Bureau Director Robert Santos speaks during the Diversity Workshop and Mentoring Program closing session.

remembered and celebrated the lives of Ken Brewer, David Cox, Marshall Joffe, Arthur Cohen, Nozer Singpurwalla, and Donald A. S. Fraser.

The success of JSM 2022 is the outcome of hard work by many people, especially the program chairs from each section or association. You can view them at bit.ly/3DUkPaC.

My experiences as the program chair for the Section on Bayesian Statistical Science in 2005 and the program chair for JSM 2022 were rewarding. The working relationships I have developed with many of you are rich and have been long-lasting. I strongly invite you to get involved with JSM in any capacity. I look forward to seeing you in person at JSM 2023 in Toronto, Ontario, Canada. ■

Inspired by JSM being in our nation's capital for the first in-person JSM since 2019, The University of Texas at El Paso's Lawrence Lesser rewrote Lee Greenwood's signature hit song, "God Bless the USA," to give the ASA its own anthem.

"God Bless the ASA"

lyric © 2022 Lawrence M. Lesser

If tomorrow all the things were gone
I count on in this life
And everything was changing
so it's hard to know what's right,
I'd thank my lucky stars
to be livin' here today
in a principled community
and they can't take that away....

And we're proud to be statisticians
to face uncertainty:
Some may cry that numbers lie,
but we have ways to see.
And I'd gladly stand up next to you
and defend her still today
'cause there ain't no doubt
I love this field: God bless the ASA!

The ASA has flourished
nearly 2 centuries:
began as Boston quintet –
now, sea to shining sea
with some 20,000 members
practicing today
in academe, bus'ness, and government
and it's time we stand and say....

That we're proud to be statisticians
with high integrity
as we share results with clientele
and society.
And I'd gladly stand up next to you
and defend her still today
'cause there ain't no doubt
I love this field: God bless the ASA!



Many Honored at Presidential Address and Awards Ceremony

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

Founders Award

The Founders Award recognizes members who have rendered distinguished service to the association. Those who are selected have served the association for an extended time, usually in a variety of leadership roles wherein effective service or leadership was provided within the ASA or through ASA outreach to other organizations.



Marker



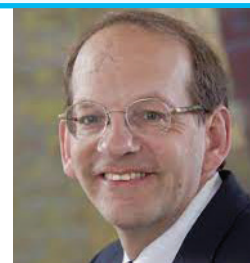
Opsomer



Roberson



Shipp



Stern

David Marker

For dedicated service to the ASA over a 25-year period; for leadership of the Washington Statistical Society as president; for chairing the Scientific and Public Affairs Advisory Committee; for service as the program chair of the Survey Research Methods Section; for service as a member of the Committee on Representatives to AAAS and the Committee on Nominations; for leadership as a member of the ASA Board of Directors; for exemplary service and leadership as vice chair of the Professional Issues and Visibility Council; and for outstanding leadership as co-chair of the Antiracism Task Force.

Jean Opsomer

For dedicated leadership and service to the American Statistical Association for more than 20 years at the national and international levels; for leadership on the Caucus of Academic Representatives, the JABES Editorial Management Committee, the Statistics and the Environment Section, the Nonparametrics Statistics Section, the Survey Research Methods Section, and Statistics Without Borders; for leadership as program chair of the Joint Statistical Meetings; and for service on the ASA Task Force on Sexual Harassment and Assault, the Edward C. Bryant Scholarship Committee, the Investments

Committee, the Committee on Publications, the Noether Awards Committee, and the Committee on Energy Statistics.

Paula Roberson

For three decades of dedicated service and leadership to the American Statistical Association, especially through ASA chapters and committees and specifically as chapter representative to the Western Tennessee Chapter and president of the Central Arkansas Chapter; for leadership of the Council of Chapters, including service on the Nominating Committee and as the Council of Chapters representative to the ASA Board of Directors; for

service on the Committee on Membership, Committee on Nominations, Committee on Women in Statistics, Founders Award Committee, Mentoring Award Committee, Gertrude M. Cox Scholarship Award Subcommittee, Joint Committee on Women in the Mathematical Sciences, and the Constitution and By-Laws Task Force.

Stephanie Shipp

For dedicated leadership and service to the American Statistical Association for 25 years; for service on the JSM Task Force; for service on and leadership of five committees—the Committee on Professional Ethics, the Committee on Privacy and Confidentiality, the JSM Program Committee, the Committee on Fellows, and the Committee on Women in Statistics—having chaired those last two; for service on the Leadership Support Council as a council vice chair; for leadership as the JSM Program Chair for the Social Statistics Section; and for chairing the Government Statistics Section and serving as its Council of Sections representative.

Hal Stern

For dedicated leadership and service to the American Statistical Association for more than 25 years; for service on the Committee on Publications and leadership as chair of the committee; for leadership as chair of the Task Force on the Future of *CHANCE*; for leadership as chair of the Statistics in Sports Section; for leadership as chair of the Section on Bayesian Statistical Science; for leadership as vice chair and chair of the Advisory Committee on Forensic Science; for editorial leadership as editor of *CHANCE*; and for editorial leadership as editor of *JASA Applications & Case Studies*. ■

ASA Fellows

Each year, ASA Fellows are nominated by the membership and selected by the ASA Committee on Fellows. Forty-eight fellows were inducted this year.

Genevera I. Allen
Rice University

Emma K.T. Benn
Icahn School of Medicine
at Mount Sinai

Veronica J. Berrocal
University of California, Irvine

Carol Bigelow
University of Massachusetts

Kun Chen
University of Connecticut

Lakshminarayan K. Choudur
Teradata Labs

Radu V. Craiu
University of Toronto

Yuehua Cui
Michigan State University

Yang Feng
New York University

Misrak Gezmu
National Institutes of Allergy
and Infectious Diseases

Beth Ann Griffin
RAND Corporation

Stephen W. Gulyas
Everest Clinical Research
Services Corporation

Christopher M. Hans
The Ohio State University

Steve Horvath
UCLA School of Medicine

Haiyan Huang
University of
California, Berkeley

Wei-Ting Hwang Perelman
School of Medicine

Douglas Landsittel
Indiana University

Mark S. Levenson
US Food and Drug
Administration

Fan Li
Duke University

Elizabeth Mannshardt US
Environmental Protection
Agency

Kelly McConville Harvard
University

Tucker S. McElroy
US Census Bureau

Christopher Steven McMahan
Clemson University

Knashawn H. Morales
University of Pennsylvania

Steven J. Novick AstraZeneca

R. Wayne Oldford
University of Waterloo

Jamis Jon Perrett
Bayer US - Crop Science

Megan Price
Human Rights Data
Analysis Group

Abel Rodriguez
University of Washington

Satrajit Roychoudhury
Pfizer

Stephan R. Sain
Jupiter Intelligence

Claude Messan Setodji
RAND Corporation

Babak Shahbaba
UCI

Julia L. Sharp
Colorado State University

Ali Shojaie
University of Washington

Susan M. Shortreed
Kaiser Permanente Washington
Health Research Institute

Sean Lorenzo Simpson
Wake Forest School
of Medicine

Lu Tian
Stanford University

Theresa L. Utlaut
Intel Corporation

Peng Wei
The University of Texas MD
Anderson Cancer Center

Brady Thomas West
Institute for Social Research

Michael C. Wu
Fred Hutchinson Cancer
Research Center

Xian-Jin Xie
University of Iowa

Eric Poe Xing
Carnegie Mellon University

Xinyi Xu
The Ohio State University

Wenxuan Zhong
University of Georgia

Jianhui Zhou
University of Virginia

Jose Zubizarreta
Harvard ■

Waksberg Award



The 2023 recipient of the Waksberg Award is Ray Chambers, who will give the Waksberg Invited Address and write a paper planned for publication in the December 2023 issue of *Survey Methodology*.

In 2001, the journal *Survey Methodology* established an annual invited paper series in honor of Joseph Waksberg to recognize his contributions to survey statistics and methodology. Each year, a prominent survey statistician is chosen to write a paper that reviews the development and current state of an important topic in survey statistics and methodology and reflects the mixture of theory and practice that characterized Waksberg's work.

Waksberg was a giant in survey sampling for nearly seven decades, beginning at the US Census Bureau in 1940 and then moving to Westat in 1973, where he served as board chair from 1990 until his death in 2006.

The award includes an honorarium made possible by a grant from Westat.

The author of the 2023 Waksberg paper was selected by a four-person committee—Jack Gambino (chair), Kristen Olson, Giovanna Ranalli, and Denise Silva—appointed by *Survey Methodology* and the American Statistical Association. ■

2022 SPAIG Award Honors Health Care Collaboration

The Statistical Partnerships Among Academe, Industry, and Government (SPAIG) Award annually recognizes outstanding partnerships among academe, industry, and government organizations and aims to promote new cross-sector collaborations. This distinct ASA award emphasizes recognition of outstanding collaborations between organizations, while also recognizing key individual contributors and important advances.

The SPAIG award winner was announced at the 2022 Joint Statistical Meetings in Washington, DC. This year, the SPAIG award honors the collaboration between Harvard Medical School and Partners In Health as they formed the COVID-19 Multicountry Research Group to address critical data and clinical needs across eight countries.

We had the opportunity to communicate with the following individual contributors and leaders to learn about the winning collaboration, the challenges they faced, and their keys to success:

- **Moses Banda Aron**, Monitoring and Evaluation Manager, Partners In Health/Malawi
- **Isabel (Izzie) Fulcher**, Biostatistician, Harvard Data Science Initiative Fellow, Harvard Medical School
- **Bethany Hedt-Gauthier**, Biostatistician, Associate Professor, Harvard Medical and Chan Schools
- **Jean Claude (JC) Mugunga**, Deputy Chief Medical Officer, Partners In Health

Can you briefly describe how the collaboration started?

Mugunga: Partners In Health and scholars from Harvard Medical School's Global Health Research Core have partnered for many years with the goal of advancing research and research equity

in Partners In Health-supported countries. Up until the start of the pandemic, the joint work was mostly focused on specific research projects in a single country. With the onset of Partners In Health's COVID-19 response in March 2020, this group formed to provide real-time information for data-driven clinical responses and coordinate our research efforts and diverse skills across our organizations and country teams.

Hedt-Gauthier: As JC mentioned, many of the individuals in the CovMRG were already connected, but certainly not at this scale. JC and the Global Health Research Core director, Megan Murray, convened biweekly meetings to outline the common research questions across the sites. Our team then developed a set of methods to address these questions and worked closely with the site leads to make sure the methods integrated well into existing systems. Because of the enormity of the work, we engaged other Harvard faculty and trainees to respond to the countries' data needs more quickly.

What are the major benefits coming from the collaboration that would not have otherwise happened?

Aron: This was my first time working with a diverse team of statisticians, epidemiologists, clinicians, and public health care workers toward a single goal. Our team included individuals from nine high-income countries and lower- and middle-income countries, with the goal of monitoring for pandemic surges and the use of essential health services during COVID-19. Most importantly, the collaboration shaped program design and improvements to avert the disruption of essential health services in lower- and middle-income countries. In addition, the group published multiple research articles in reputable journals such as



BMJ Global Health, *WHO Bulletin*, and the *International Journal of Epidemiology* and received research grants to support this work. Finally, the CovMRG team led several capacity-building courses, including a time series data analysis workshop and manuscript writing course, that have been beneficial to the group members and our site teams.

Fulcher: As statisticians, we often develop tools for broad and general use cases, but the CovMRG collaboration enabled the statisticians on our team to develop statistical methods that were suited for a specific purpose. One of our primary projects was to leverage routine data sources in resource-constrained settings to identify potential COVID-19 outbreaks. As Moses mentioned, we taught an in-depth statistical training course for our in-country collaborators to accompany the methods development. Because we developed methods for this specific purpose and provided targeted training, we were able to build the foundation for continual adaptation and integration of our methods within health data systems.

What have been the most rewarding and most challenging aspects of the collaboration?

Mugunga: There were a lot of unknowns surrounding the COVID-19 pandemic at the onset, coupled with a

lack of proper testing in our supported countries. The most rewarding aspect of this collaboration has been the opportunity for all Partners In Health—supported countries and Harvard researchers to sit together regularly and continue to identify and respond to the most pressing research questions affecting our sites’ day-to-day care of communities.

As for challenges, our teams spanned multiple countries with varying internet connectivity for a proper virtual engagement. Izzie was often on calls at 5 a.m., and our colleagues in Lesotho as late as 7 p.m. Limited resources and few research funding grants were other challenges to overcome, and these challenges persist as we aim to continue this collaboration even beyond our COVID-19 studies.

Fulcher: From the statistics side, the cross-country collaboration was an exercise in building an analytic platform both tailored to the needs of each site and general enough to not reinvent the wheel for each use case. This was a challenging task, as it required a deep understanding of each site’s data systems, goals, and target audience, which was followed by a translation of these needs into an automated data-processing pipeline. Despite the challenge, it was extremely rewarding to be able to work closely with and across country sites to enable a data-driven response to the COVID-19 pandemic.

What advice would you give to individuals and organizations looking to be more collaborative?

Hedt-Gauthier: My biggest lesson learned is that sometimes you have to slow down to go fast. We spent almost the entire first two months (April and May of 2020) discussing our common goals and desired approaches. This was difficult because the issues felt incredibly pressing. However, I believe our work is stronger by investing time in developing our relationships and ensuring we truly were on the same page.

Aron: I think statisticians and epidemiologists are critical in translating the work implemented by clinical and community health teams to inform evidence-based decisions. The collaboration between these groups remains essential to improving health care, especially in lower- and middle-income countries, and especially in the COVID-19 pandemic era. Our experience has shown that multidisciplinary teams solving problems is more effective than individual scientific work. I would urge organizations, especially those implementing programs in lower- and middle-income countries, to consider engaging top-tier institutions to collaborate on research and generate the evidence that would inform policy change. ■

Daniela Witten Wins COPSS Presidents' Award



Daniella Witten receives the COPSS Presidents' Award from Tianxi Cai, chair of the COPSS Presidents' Award Committee. Photo by Eric Sampson/ASA

Daniela Witten is a professor of statistics and biostatistics at the University of Washington and the Dorothy Gilford Endowed Chair in Mathematical Statistics. She develops statistical machine learning methods for high-dimensional data. Much of her work is motivated by applications in genomics and neuroscience. Witten is passionate about communicating key ideas from statistical machine learning to a broad audience and is co-author of the textbook *Introduction to Statistical Learning*. Witten completed a BS in math and biology with honors and distinction at Stanford University in

2005 and a PhD in statistics at Stanford University in 2010.

She was honored with the following citation:

For bridging the gap between the questions that scientists are asking about their data and the statistical methods that are available to provide insightful answers, especially in the context of biomedical research; for developing flexible and interpretable approaches for modeling large-scale and high-dimensional data; and for the significant elevation of statistical science via successful translation of statistical ideas to a broad audience.

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

Oh, gosh. I got an email from Tianxi Cai (chair of the award committee) in late January notifying me of the award and, honestly, my first reaction was that she had sent it to the wrong email address. My second reaction was to double-check the date was not April 1. My third reaction was to text my husband.

After things settled a bit, I had the opportunity to reflect on the community that has made not just this award, but my entire career, possible. These include my wonderfully supportive colleagues in the University of Washington departments of statistics and biostatistics, my collaborators near

and far, the absolutely fantastic PhD students I've had over the past 12 years, and my family. Also, Rob Tibshirani, my PhD adviser—more on that later.

Which part of your job do you like the most?

Hands down, my favorite part of the job is working with grad students. I have had the privilege of working with immensely talented PhD students during the past 12 years. Nothing beats a front-row seat to the development of a first-year student into an independent researcher. I take immense pride in the accomplishments of all my students and the ways (both large and small) I've been able to help them along their academic journeys.

And I love the intellectual freedom my job provides. I can spend all day (or at least part of the day... on some days ... a couple of days per month when time allows ...) learning about things that interest me. What could be better?

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

Getting a PhD, and working toward tenure, is not easy. Actually, it's extremely hard. The academic system never misses an opportunity to remind us of all the things we don't know and all the ways in which our work is not 'good enough.' So, acknowledge

that what you're doing is hard, you don't need to be perfect, and a lot of people are finding it just as hard as you are. (I certainly did at your career stage and sometimes still do!)

I wrote my top tips for PhD students in a recent installation of "Written by Witten," my column for the *IMS Bulletin*. View it at <https://bit.ly/3Q8bqPc>.

And I'll sum it all up with a quote from Dory from the movie *Finding Nemo*: "Just keep swimming."

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

My most significant mentor has been my PhD adviser, Rob Tibshirani. He has provided unflagging support every step of the way, starting from the beginning of my PhD and continuing to this day. I've learned so much from him, not just about the field of statistics, but also about how to interact with the world as a scientist and a person. He's also set an incredibly high bar in terms of how to be a PhD adviser, which I will spend the rest of my career trying to meet with my own students. I'll stop now so I don't embarrass him :)

I've learned mentorship doesn't need to be a one-stop shop; I've relied on different people for different types of mentorships throughout my career. Gareth James, my co-author on *Introduction to Statistical Learning*, has taught me the value of patience (actually, he's still teaching me this).

Ali Shojaie's time as junior faculty at the University of Washington

overlapped with mine, and he helped me through so many hurdles during that period.

Jacob Bien, a long-time friend and collaborator, has reminded me that it's important for research to be fun.

I've learned a lot from some of my senior colleagues at the University of Washington, especially former department chairs Bruce Weir and Patrick Heagerty.

I'm fortunate to have been able to surround myself with a supportive community of women. This includes Ya Xu, Sarah Emerson, and Layla Parast from my grad student days and Emily Fox and Amy Willis from my time as faculty. It also includes senior women who have provided ongoing inspiration and a listening ear over the years: Liza Levina; Francesca Domenici; Bhramar Mukherjee; and Florentina Bunea.

Why were you drawn to statistical machine learning?

During my first year of grad school at Stanford, I took the two-quarter PhD sequence in statistical machine learning, taught by Trevor Hastie and Jerry Friedman, out of the textbook *Elements of Statistical Learning*. I fell for the field—hook, line, and sinker. I was fascinated by the idea that so many of the seemingly mysterious ideas and algorithms in machine learning and artificial intelligence could be demystified—and improved upon—through a solid understanding of statistics. And I was intrigued by the possibility of developing and applying these

types of methods to solve problems in biology.

Anything else you would like to share about our profession?

I feel so thankful to have found a career that has allowed me to spend my time learning new things and working with talented and kind people. I have felt welcomed into this field ever since I started grad school in 2005.

However, I recognize my experience has been shaped in large part by my immense privilege. To name just a few aspects of this privilege: I am white, American, and a native English speaker; I did my undergrad at Stanford; and my parents are academics.

I hope we can commit as a field to ensuring our profession is a welcoming place for all, especially for members of groups that have been historically marginalized in academia and the mathematical sciences. And I'd like to express my immense gratitude to the many statisticians who are already working toward this goal every single day.

Finally, what are your hobbies/interests beyond statistics?

Outside of work, I spend most of my time with my husband and children, ages 3, 6, and 8. I love to cook, eat, travel, and spend time with friends. I also try to squeeze in some exercise. (I am an enthusiastic runner, and you can learn about my relationship with my Peloton bike in my first "Written by Witten" column at <https://bit.ly/3czJPc1>.) ■

MORE ONLINE

Plenary session webcasts are available at <https://bit.ly/3cG63Jn>.

To view all the award winners, including those from the Institute of Mathematical Statistics and Committee of Presidents of Statistical Societies, check out the JSM awards book at <https://bit.ly/3CKNoH3>.

Nominations for the 2023 SPAIG Award are due March 1, 2023. Learn more at <https://bit.ly/3RjWBtO>.

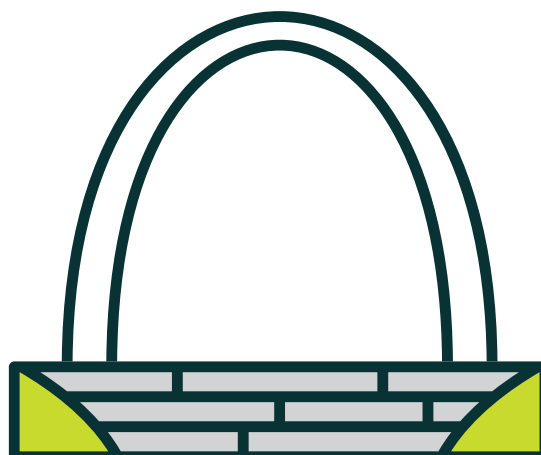
Planning Underway for SDSS 2023

Emily Dodwell, SDSS 2023 Program Chair

Inspired by the parallels between a data science project workflow and the twists and turns that mark one's career, the theme of the 2023 Symposium on Data Science and Statistics is "Beyond Big Data: Inquire, Investigate, Implement, Innovate." It represents the curiosity, creativity, and ingenuity that distinguish and are encouraged by our community to progress this ever-evolving field. I invite you to join us at next year's conference in St. Louis, Missouri, from May 23–26.



The members of the program committee bring many years of experience across industry, government, and academia. The refereed review process they complete produces a varied set of technically rigorous talks that represent the latest research and applications in each of the six conference tracks: computational statistics; data visualization; education; machine learning; practice and applications; and software and data science technologies.



Refereed abstract submissions will be accepted through December 15.

We will continue our partnership with Jun Yan, editor of the *Journal of Data Science*, for a special issue to which authors of refereed presentations will be invited to submit their papers for publication. Learn more about the *Journal of Data Science* at <https://jds-online.org/journal/JDS>. The upcoming publication of the SDSS 2022 special issue will be available there, as well.

As in years past, the program for SDSS 2023 will also consist of short courses on a variety of relevant skills and topics, plenary addresses, and lightning talks paired with corresponding poster sessions. The latter represent a way to contribute to the conference program, particularly for first-time presenters and early-career researchers who wish to showcase their work. Abstract submission for lightning talks will be open from February 1 to March 10, 2023.

Next year's conference venue is a National Historic Landmark. The St. Louis Union Station Hotel is a former railroad station that operated from 1894–1978. It is located in the city's historic district, steps from the St. Louis Wheel and St. Louis Aquarium and a mile and a half down Market Street from Gateway Arch National Park. Visitors can ride a tram to the top of Gateway Arch, the tallest monument in the country, to take in views of downtown St. Louis and the Mississippi River. Come to St. Louis to reconnect with and meet new friends, classmates, and colleagues. I look forward to seeing you there. ■

What's Going On in This Graph? Begins Sixth Year

The ASA partnership with The New York Times Learning Network on “What’s Going On in This Graph?” (WGOITG), a weekly online feature, is about to start its sixth year. Led by Sharon Hessney and designed for students in grades 7 and above, the program helps teachers lead class discussions about graphs appearing in *The New York Times*. WGOITG encompasses activities and questions designed to improve students’ understanding and critical interpretation of visual displays of information in real life.

Launched in the fall of 2017, WGOITG expanded to providing weekly content in 2018. A previously published *New York Times* graph and related content is released most Thursday afternoons throughout the academic year. Students are asked four questions: “What do you notice in the graph?”; “What do you wonder from the graph?”; “How does the graph relate to you and your community?”; and “Can you create a catchy headline that captures the main idea of the graph?” Students and teachers can participate in a live online discussion about the week’s WGOITG on Wednesdays between 9 a.m. and 2 p.m. ET.

There are usually about 300–500 responses weekly, although responses have exceeded 1,000 some weeks. Each week, the previous WGOITG is updated with a “reveal” that shares the free link to the *New York Times* article that included the graph, highlights from the discussion and additional questions, shout outs for the best student headlines, and related statistical concepts and vocabulary (“Stat Nuggets”).

In addition to curating, writing, and moderating WGOITG, Hessney recruited and coordinates more than 50 teacher moderators and has participated in numerous webinars about the program. She also updates an index of WGOITG’s released graphs by topic, graph type, and Stat Nugget. Roxy Peck and Erica Chauvet serve as advisers and editors.

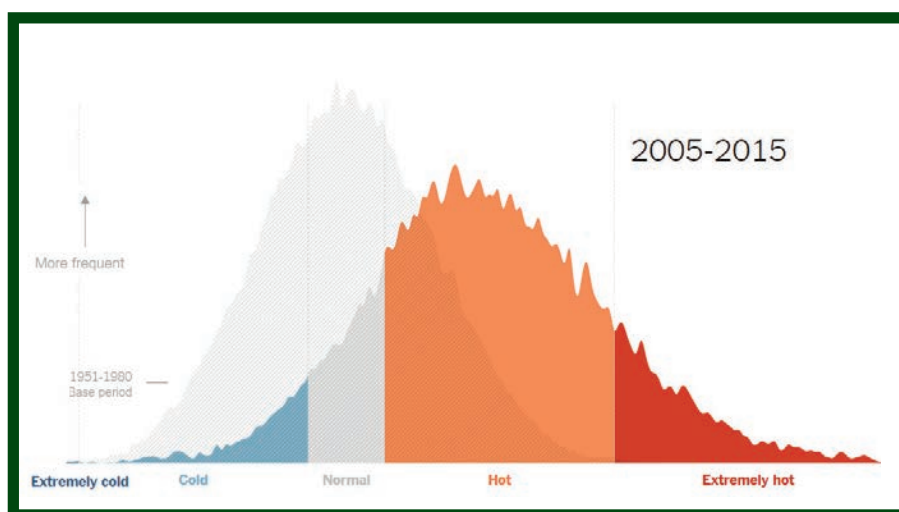
To mark the first five years of WGOITG, the editors at *Amstat News* asked Hessney the following questions.

What are you trying to accomplish (and not accomplish) through WGOITG?

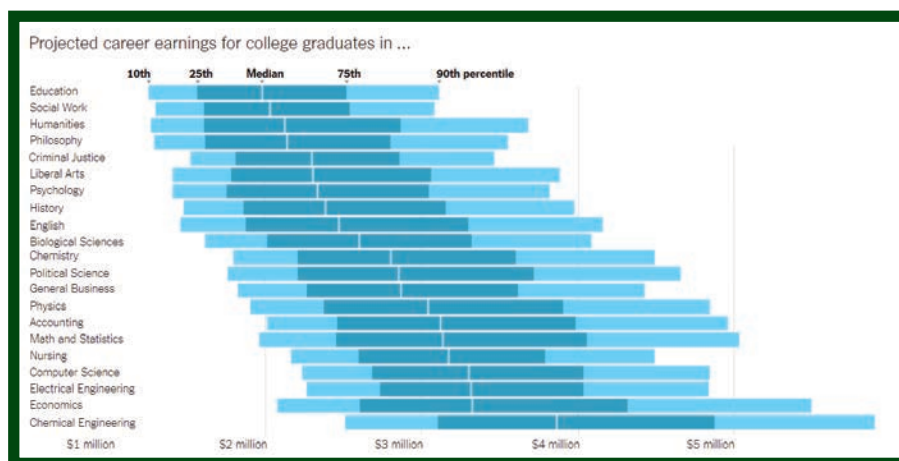
ASA partners with The New York Times Learning Network on WGOITG to increase statistical literacy and greater understanding of graphs. Viewers learn how to tease out the stories *New York Times* graphs tell about our world. As past *New York Times* graphics editor Amanda Cox would say, “Graphs are not just points, lines and bars, but are meant to generate empathy.” Students learn to be skeptical, but not cynical, about statistics and graphs.



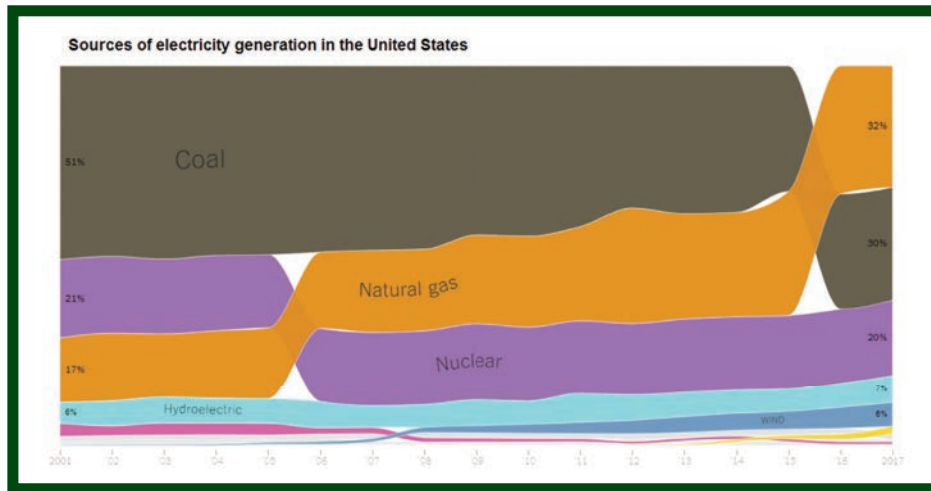
Sharon Hessney



It's Not Your Imagination. Summers Are Getting Hotter. (May 8, 2018.)



Six Myths About Choosing a Major (Jan. 9, 2018)



How Does Your State Make Electricity? (March 13, 2019)

Who is the intended audience for WGOITG?

WGOITG is prepared for students in middle school all the way to college. Of course, math and statistics classes use WGOITG, but the releases have been used extensively by science and humanities classes, too. Students will learn about different types of graphs and statistics without realizing they are learning so much. It's only the graph's topic that limits its audience.

Describe the noticing and wondering approach and why you use it.

Annie Fetter began asking math students, "What do you notice?" and "What do you wonder?" This teaching strategy opens up the discussion to all students of varying abilities with its low floor (anyone can notice something about a graph) and high ceiling (the big idea and nuances of a graph). By using the noticing and wondering questions in a discussion with give and take, the students' depth of interest in the graph increases.

What makes WGOITG unique?

WGOITG is unique in so many ways:

- WGOITG and their corresponding *New York Times* articles are free.
- WGOITG is the only teaching source using *New York Times* graphs and the only weekly math feature of the New York Times Learning Network.
- WGOITG introduced the noticing and wondering strategy to the Learning Network. Its use has spread beyond WGOITG and, in schools, beyond math lessons.

WGOITG in Year Five

Running from September 2021 to May 2022, year five of "What's Going On in This Graph?" included the following:

- 30 releases, with 25 graph types and 69 Stat Nuggets
- 48 moderators from 24 states and two foreign countries, plus editors Roxy Peck and Erica Chauvet
- Three Lessons of the Day, written by Dashiell Young-Saver, creator of *Skew The Script* (<https://skewthescript.org/highlights>)
- 11,485 responses, up from 9,509 in year four

According to Hessney, the year five graphs continued to cover ongoing challenges—COVID (4), climate change (6), inequality (2), and gun violence (1)—in addition to newer ones such as Ukraine refugees and free speech. Diversity showed up in graphs based on the 2020 US Census (4) and international surveys (2). Lighter topics included Olympics gymnastics routines, international optimism, and weddings.

In addition to the releases, Hessney and the ASA team for *ThisIsStatistics* spread the word about WGOITG through the ASA #DataViz Headline Challenge (<https://thisisstatistics.org/dataviz-headline-challenge>). More than 1,020 headlines were received based on the April graphs. Additionally, Hessney gave six virtual presentations.

- Students publish their responses online. With live moderation replies by high-school and college teachers including students from around the world, a student's ZIP code does not determine who they learn from.
- Seasoned teachers curate the graphs and write the teacher and student resources. This includes each graph's Stat Nuggets—a graph's specific math and statistics terms with their nontechnical definitions and accompanying explanations of how they are used in the graph.
- WGOITG has three archives—by topic, graph type (49), and Stat Nugget (120+)—which broaden the use of the feature.

How have the responses to WGOITG changed in the past five years?

We see more thoughtful responses that are mathematically correct and substantially longer.

Understanding the webpage traffic data is proprietary, to what extent do you think you are accomplishing your goals?

Our main goal is to spread the attraction to graphs and how to “read” them. This is measured by our “traffic” and geographic reach. With 126 releases in the past five years, we have had more than 42,000 online responses. But how many students have engaged with WGOITG? Though we do not have access to the feature's traffic statistics, we have been told the number of viewers may be about 100:1 (viewers to responders). Since students need to register with their location, we know we are hearing from a much broader geographic range, including from around the world.

What's next for WGOITG?

Though I wish for fewer graphs on adverse climate change, inequality, COVID, and armed conflicts, we use graphs that reflect what is going on in our students' world. This continues to be our mission.

How can one get involved or contribute?

Go to our website at www.nytimes.com/column/whats-going-on-in-this-graph. Read any of the releases that catch your fancy. Try out WGOITG for introducing a math or statistics concept or topic. Using a current release (published weekly September–May), respond! Submit your catchy headline that captures the main idea of the graph. If you generate a winning headline, you get published in *The New York Times*. ■

Nominations Sought for Stan Altan Paper Award

The ASA Biopharmaceutical Section Nonclinical Biostatistics Working Group invites nominations for the 2023 Stan Altan Nonclinical Biostatistics Paper Award.

Nominated papers must address a relevant topic in nonclinical biostatistics disciplines for the biopharmaceutical industry. The scope of the eligible papers is broad and generally includes anything except topics directly related to clinical trials. This might include topics covered in the book *Nonclinical Biostatistics for Pharmaceutical and Biotechnology Industries* by Lanju Zhang, Max Kuhn, Ian Peers, and Stan Altan. Topics such as biomarker discovery, pharmacometrics, machine learning, and AI applications that are not directly concerning trial design (phases I–IV) are also welcome.

All eligible papers must have been published—or accepted for publication—in English in refereed journals between January 1, 2016, and March 1, 2023. Send an electronic copy of the paper being nominated to Angel Lu at yuelin.lu2013@gmail.com by March 15, 2023.

The best paper award will be presented to the winning author(s) at the 2023 Nonclinical Biostatistics Conference at Rutgers University, New Jersey. Due to COVID-19, the award may be mailed.

For details, visit <http://community.amstat.org/biop/workinggroups/ncbwg/awards>.

About Stan Altan

Throughout his career, Altan has been a champion for the broad range of statistical methods used in nonclinical research. His vision to unify practitioners of nonclinical statistics and emphasize the critical effect of statistics in drug development outside the clinical arena has left its mark on the industry.

Oxford University Hosts EDGE Summer Program for Women in Mathematics

Amy Oden, EDGE Foundation Associate Director of Programs and Grants

MORE ONLINE

To learn more about EDGE, visit www.edgeforwomen.org. View a list of 2022 participants at www.edgeforwomen.org/edge-2022-participants.



Participants, faculty, and staff of the 2022 EDGE Summer Program. Photo courtesy of Nicola Kirkham.

On a scorching day in Oxford, a group of 14 women spill through St. Johns College, swapping undergraduate stories and strategizing for their algebra and real analysis courses. Though they met less than a week ago, they have formed a connection that will carry them through a month of intensive math and the rest of their professional careers.

These students comprise the 2022 cohort of the Enhancing Diversity in Graduate Education (EDGE) Summer Program, designed for women about to enter PhD programs in the mathematical sciences. Now in its 25th year, EDGE has reached a milestone by hosting a program not based in the US.

EDGE students will complete accelerated courses in algebra, real analysis, machine learning, and measure theory, working together to complete



From left: Laura Mora and peer mentor Sofia Martínez discuss an EDGE homework problem. Photo courtesy of the EDGE Foundation.



EDGE participant Amanda Hernandez works through her homework on the whiteboards of the Oxford Mathematical Institute. Photo courtesy of the EDGE Foundation.

rigorous problem sets and prepare a textbook for future use. They will also attend colloquia featuring notable mathematicians from Oxford University such as Ulrike Tilmann, Helen Byrne, and Xenia de la Ossa; participate in a probability mini-course; and prepare individual presentations.

This year's participants, dubbed EDGErs, hail from across the United States, Poland, and Ghana. Following the program, they will enter 12 graduate programs across the US and UK, studying applied and pure mathematics, statistics, and operations research.

The EDGE Summer Program is hosted at Oxford this year with the support of Heather Harrington, a Royal Society University Research Fellow at the Mathematical Institute in Oxford and EDGE alumna. A 2020 recipient of the Philip Leverhulme Prize, Harrington designated a portion of her prize funds to partially support the 2022 program. The American Statistical Association has supported the previous three programs; this year, they are an EDGE lead sponsor.

Founded in 1998 by Sylvia Bozeman, professor emerita at Spelman College, and Rhonda Hughes, professor emerita at Bryn Mawr, EDGE was designed to increase the number of women who thrive in leadership roles in the mathematical sciences. Throughout the program, EDGErs build the skills and support network necessary to thrive in graduate school and beyond. More than 90 percent of all alumni have either earned advanced degrees or are still in school. ■

Obituaries

William E. Winkler

Submitted by Tommy Wright, US Census Bureau



Bill Winkler

William (Bill) E. Winkler, widely respected colleague and friend, passed away June 30, 2022.

Bill was born November 11, 1946, in Cincinnati, Ohio, to William and Betty Winkler. He grew up in Grand Rapids, Michigan, and earned a BS in mathematics (1968) from Michigan State University. He later earned a PhD in probability theory (1973) from The Ohio State University.

Bill served as assistant professor of statistics at the University of Pittsburgh (1974–1979) before joining the US Energy Department Energy Information Administration as a mathematical statistician (1980–1987). In 1987, he joined the Census Bureau's Statistical Research Division (now Center for Statistical Research and Methodology), where he served as principal researcher and leader of the Record Linkage and Machine Learning Research Group until his retirement in 2019. Starting in 2009, he was also an affiliated faculty member in computational and data sciences at George Mason University.

Bill was recognized internationally for his

collaborative research contributions to record linkage (entity resolution), statistical modeling, editing and imputation, privacy and confidentiality, and multipurpose and multi-way sampling. In many areas of Census Bureau daily work, one sees benefit from his passionate work with colleagues in record linkage using enhanced versions of the software packages *Matcher* and *BigMatch*. His name is attached to the related terms “Jaro-Winkler String/Sequence Comparator,” “Jaro-Winkler distance,” and “Jaro-Winkler similarity.”

Bill's work helped trigger a renaissance that motivated other researchers to focus on further development of the probabilistic and statistical theory at the foundations of record linkage. Record linkage methodology is key to current and future Census Bureau work as it seeks to make greater use of administrative records and other data sources to enhance and create more data products from its censuses and sample surveys.

Bill was frequently the keynote speaker at conferences, and he authored or coauthored many highly cited publications, including the book *Data Quality and Record Linkage Techniques*. He also taught short courses on record linkage and cleaning administrative data, as well as actively serving on numerous expert panels and committees that addressed the following issues of national importance:

- Challenges in implementing and maintaining secure and accurate state voter registration databases
- The need to replace social security numbers with more secure identifiers

- A proposed public-use database related to airline safety

Bill's professional contributions led to his election as a fellow of the American Statistical Association in 1996.

He led, worked with, and mentored many colleagues and intern graduate students. A knock on Bill's door or a telephone call to him was always followed by a sincere smile and the response, "How can I help you?" And he did! He gave attention to his work and others, rather than to himself.

Bill loved to read science fiction and everything technical and mathematical. He enjoyed long walks on the beach and an occasional beer on the deck. He also liked playing tennis as a college student. He was an avid runner and ran in the local races in Washington, DC, especially around the Tidal Basin.

He is survived by his wife of 50 years, Beth; two children, William F. and Stephanie; four grandchildren; and one great grandchild. ■

Nozer Darabsha Singpurwalla

Submitted by Kimberly F. Sellers, Refik Soyer, and Thomas Mazzuchi

Nozer Darabsha Singpurwalla, 83, passed away on July 22, 2022, at his home in Washington, DC, surrounded by family. He was born in Hubli, India.

Nozer immigrated to the United States as a young man and earned an MS in engineering from Rutgers University and a PhD in engineering from New York University under the direction of John Kao. He met



Singpurwalla

Norah Jackson (who had recently immigrated from England) during a dance at Disneyland, and they married in 1969. Nozer and Norah lived most of their married life in Arlington, Virginia, where they raised their two children, Rachel and Darius.

Nozer was a faculty member at The George Washington University in Washington, DC, for more than 40 years, serving as distinguished research professor in both the department of statistics and department of operations research (later engineering management and systems engineering, respectively) and director of GWU's Institute for Reliability and Risk Analysis; he further held a courtesy appointment with the GWU department of decision sciences.

With expertise in fields including reliability theory, risk analysis, Bayesian statistical inference, quality control, and statistical aspects of software engineering, Nozer authored/coauthored three books, co-edited six additional references, and published more than 200 manuscripts. He was a prolific researcher who won prestigious grants and contracts with agencies, including the National Science Foundation, National Institute for Standards and Technology, Office of Naval Research, Army Research Office, and NASA. He also held various

secondary appointments and consultancies with laboratories, institutes, and companies nationwide.

While at GWU, Nozer further served as a visiting professor at Carnegie Mellon University, Stanford University, the University of California at Berkeley, Florida State University, the Santa Fe Institute, and the University of Oxford (UK). During the fall of 1991, he was the first C. C. Garvin Visiting Endowed Professor in the Mathematical Sciences at the Virginia Polytechnic Institute and State University and, in 1993, he was awarded a Rockefeller Foundation Grant as a scholar in residence at the Bellagio, Italy Center.

Nozer's extensive scholarship and research carried over into his teaching and service activities. He had an impressive track record as a PhD adviser to more than 40 students, sometimes overseeing multiple students graduating in the same year. His scholarly service meanwhile included a broad array of editorial boards, including those of the *Journal of the American Statistical Association*, *International Statistical Review*, *Operations Research*, *Technometrics*, and *The American Statistician*.

Nozer retired from The George Washington University in 2013 and served another eight years as faculty with the City University of Hong Kong. From 2013–2017, he held a joint appointment as chair professor in the department of system engineering and engineering management and the department of management sciences. He then made a transition to other

faculty roles in the school of data science from 2017–2021; thereafter, he was an honorary professor in the department of management sciences.

Nozer was revered internationally for his scholarship, particularly regarding foundational aspects of reliability, risk analysis, and Bayesian statistics. His efforts earned him distinctions such as fellow of the Institute of Mathematical Statistics, American Statistical Association, and American Association for the Advancement of Science and elected member of the International Statistical Institute. He also was recognized as the 1984 recipient of the US Army's S. S. Wilks Award for Contributions to Statistical Methodologies in Army Research, Development, and Testing; the first recipient of The George Washington University's Oscar and Shoshana Trachtenberg Prize for Faculty Scholarship in 1992; and an ASA/NSF/NIST Senior Research Fellow in 1993. In 2011, he was recognized with the Medal of Excellence from his alma mater, Rutgers University.

Nozer had a way with words and always enjoyed a spirited debate. His colleagues will most remember his sense of humor and ability to make the complex appear simple. He loved music (Indian, classical, and opera), history and politics, and world travel with his family. He is survived by his wife, Norah (née Jackson); his sister, Khorshed Tantra, and her family; his children, Rachel (Peter) and Darius (Jennifer); and his beloved grandchildren, Veronika and Cyrus. ■

Bruce E. Trumbo

Bruce E. Trumbo, professor emeritus of statistics, biostatistics, and mathematics, passed away July 8, 2022.

Bruce was a nationally and internationally recognized expert in many areas of statistics. His interests spanned probability, statistical graphics, nonparametrics, statistics education, design of experiments, mathematical statistics, Bayesian statistics, stochastic processes, probability simulation, biostatistics, R programming, and statistical consulting.

Bruce was the author of two books. His first, *Learning Statistics with Real Data* (2001), was later translated into Chinese by a former student. The second book, *Introduction to Probability Simulation and Gibbs Sampling with R* (2010)—coauthored with a former student and colleague—included chapters on the Bayesian analysis of medical testing with uncertainty. He taught a graduate course from this book until 2020.

Bruce published many papers, articles, and conference papers during his career, many related to classroom presentation of statistical ideas. Some of his early research focused on adding color to maps, which was original work and early in this field of development. He was awarded numerous grants that provided learning opportunities for his students and was recognized by statistical greats such as Frederick Mosteller, Erich Lehman, and Persi Diaconis.

Bruce joined the California State College at Hayward in 1964 (later CSU Hayward, currently CSU East Bay) after spending the previous year teaching in the mathematics

department at San Jose State University while completing his PhD in statistics from the University of Chicago in 1964. After joining the California State College at Hayward faculty, he helped develop the newly formed statistics department's undergraduate and graduate curriculum.

At the beginning of his career, Bruce taught courses in statistics without using calculators. As his career progressed, he taught courses using mechanical calculators, digital calculators, early computers, and modern computers running Minitab. He learned S-Plus in the late 1990s, and then R in the 2000s.

Bruce suggested offering evening classes to attract students employed in day-time jobs and taught the first classes offered after 6:00 p.m. in the statistics department. The evening class offerings were a success. His students benefited professionally from his insights into statistics and his dedication to life-long learning, which allowed him to keep up with ever-changing technology. His efforts ensured his students were prepared to enter the job market locally, nationally, or internationally or to pursue PhD degrees immediately upon graduating.

Bruce loved to teach and devoted his life to teaching and learning. His teaching spanned seven decades. He taught his last class at CSU East Bay the week before the first Bay Area COVID-19 lockdown. After leaving the university, he continued to teach on the Stack Exchange website (math.stackexchange.com) as BruceET, answering more than 3,000 probability and statistics questions; he often included R code for demonstration purposes. Through these

efforts, Bruce earned 49,382 reputation points, placing him in the top 0.48 percent overall. His impact was impressive; he reached ~2.6 million people.

Bruce served with distinction as a faculty member. He was elected to and served many terms on the Academic Senate. Also, for many terms, he served on and chaired the Faculty Affairs Committee. Early in his career, he served for a year in the president's office, and he served as department chair for one term. Bruce was an active member of all department committees and served on various college committees. He enjoyed and attended most of the science festivals sponsored by the college of science.

Bruce was named Outstanding Professor of the Year in 2003–2004 and received the Sue Shaffer Award in 2009–2010. He was a pioneering faculty member whose services went far beyond playing a major role in building a new department. He actively participated in hiring most of the original and current faculty in the department of statistics and biostatistics. His faithful service on committees at every level and professional mentoring ensured faculty success in achieving tenure and promotions, publishing, and enhancing teaching techniques. Bruce also worked behind the scenes at all levels to monitor and secure changes to the departmental curriculum. His presence and input were appreciated by faculty at every stage of these processes.

Three times, early in his career, Bruce took year-long leaves of absence from the university to work at the National Science Foundation Division of Mathematical Science. He

served as the program director for statistical research. As a result of his leadership, many academic statisticians who previously might not have received funding were awarded NSF grants dedicated to integrating computational statistics with applied and theoretical research. Additionally, he worked to ensure female statisticians were hired in this position following his terms and helped appoint women to many important positions at the national level.

Bruce was a fellow of both the American Statistical Association and Institute of Mathematical Statistics. He was a recipient of the ASA Founders Award and IMS Carver Medallion. Bruce was the editor of the *Current Index of Statistics* and oversaw its transition from printed paper volumes to a computerized searchable index.

The Bruce E. Trumbo Scholarship Endowment Fund was established in 2008. It has been awarded 14 times in recognition of academic excellence and other achievements by students in the department of statistics and biostatistics.

Bruce was dedicated to the statistics field and the department of statistics and biostatistics at CSU East Bay; his professional efforts will have a lasting effect on the field. He was an inspiring teacher, mentor, coauthor, and friend to generations of students and faculty.

He is survived by two sisters, Elaine and Ellen, and their families.

Anyone wishing to make a contribution to the Bruce E. Trumbo Scholarship Endowment Fund in Bruce's memory can do so by visiting www.csueastbay.edu/giving/how-to-make-a-gift.html. ■

Othmar Winkler

Othmar W. Winkler passed away August 14, 2022, at the age of 99.



Winkler

One of five children, Othmar was born in Vienna, Austria, to Wilhelm Winkler and Clara Deutsch Winkler, a Jewish convert to Catholicism. Othmar completed his PhD at the University of Vienna and, in 1949, immigrated to Caracas, Venezuela, where he taught at the university for five years. He married Ellen Fletcher in 1954 and relocated to Santiago, Chile, where four of their seven children were born. He joined the business school faculty at Georgetown University in 1961 and retired in 1993. As professor emeritus, he remained close to the Georgetown Jesuits and community and continued his academic pursuits.

His family established the Othmar W. Winkler Award at Georgetown's McDonough Business School to recognize graduating seniors demonstrating the Jesuit values of social justice and community service as future business leaders. In lieu of flowers, gifts may be made to the Othmar W. Winkler Award Fund at <https://bit.ly/3AB7bWS>. ■

Alabama-Mississippi Chapter

Chapter Officers

Michelle Zhou, *President*

Seth Lirette, *Vice President*

Xin Dang, *Secretary*

Suzanne Perumean-Chaney, *Treasurer*

Jon Woody, *Council of Chapters Representative*

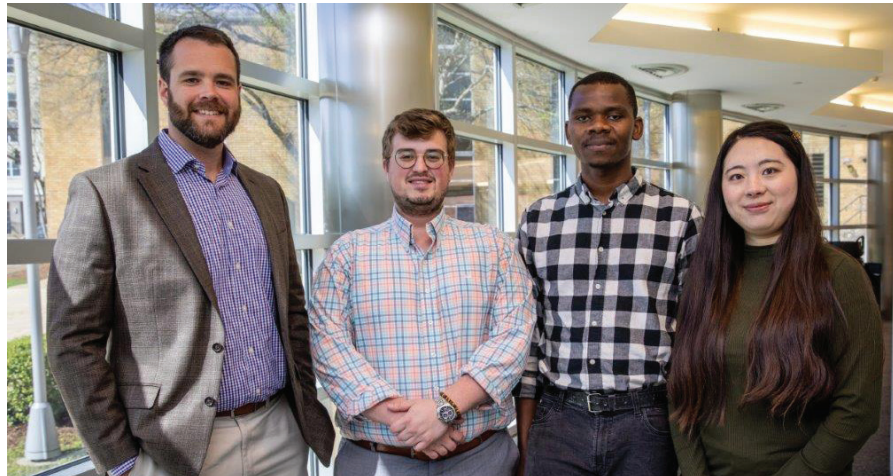
The Alabama-Mississippi Chapter hosted its annual conference April 1, 2022, at the University of Mississippi Medical Center. Nearly 50 current and prospective chapter members attended from the University of Mississippi Medical Center, University of Mississippi, Mississippi State University, University of Alabama at Birmingham, and Auburn University.



Eric Laber speaks during the Alabama-Mississippi Chapter conference held at the University of Mississippi Medical Center.

Eric Laber, a professor in the department of statistical science and department of biostatistics and bioinformatics at Duke University, gave the keynote address, titled “Hierarchical Surrogate Outcomes in mHealth.” Student presenters and their topics included the following:

- **Mengna Zhang** of the University of Mississippi Medical Center, “An Unweighted Polygenic Risk Score for QT Interval Prolongation in African American Sickle Cell Disease Patients” (first-place student winner)
- **Mathias Muia** of the University of Mississippi, “Dependence and Mixing for the Perturbations of Copula-Based Markov Chains” (second-place student winner)



From Left: Chapter Vice President Seth Lirette and student award winners Jordan Eckert of Auburn University (third place), Mathias Muia of the University of Mississippi (second place), and Mengna Zhang of the University of Mississippi Medical Center (first place)

- **Jordan Eckert** of Auburn University, “Which Trap Is Best? Alternatives to Human Landing Catches for Malaria Vector Surveillance: A Meta-Analysis” (third-place student winner)
- **Tran Le** of the University of Mississippi Medical Center, “Using Machine Learning Approaches to Identify Novel Factors and Interactions Associated with Dementia: The Atherosclerosis Risk in Communities (ARIC) Study”
- **Fekadu Baysia** of Auburn University, “Spatial Point Process Modeling of Ambulance Call Risk”
- **Mohiuddin Adnan** of the University of Mississippi Medical Center, “A Run-In Phase Design and Classification Framework for Comparative Therapeutic Trials”

The chapter also held a brief business meeting. Topics of discussion included a look back at recent Alabama-Mississippi Chapter activities, a report on the ASA Council of Chapters meeting, and a chapter treasurer’s report. ■

Quality and Productivity

The Quality and Productivity Section held its business meeting virtually on August 1. The notes from the meeting contain information about upcoming conferences and award deadlines and can be found at https://magazine.amstat.org/wp-content/uploads/2022/09/Executive_Committee_Minutes_Aug-22.pdf.

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

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

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

These listings and additional information about the 65-word ads can be found at ww2.amstat.org/ads.

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 <https://jobs.amstat.org/jobseekers>.

Massachusetts

■ The Boston University Mathematics & Statistics invites applications for a tenure-track assistant professor in the field of statistics. Our department is committed to building and sustaining a diverse, cohesive community of scholars. In addition to their commitment to research and teaching, we particularly encourage applicants to indicate how they can meaningfully contribute to an equitable and inclusive community in our department. Application deadline: 12/1/2022, www.mathjobs.org/jobs/list/20426. We are an equal opportunity employer. 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. We are a VEVRAA Federal Contractor.

■ The Dept. of Community Health in the School of Arts and Sciences at Tufts University invites applications for a full-time Lecturer faculty position, with a focus on applied biostatistics and quantitative epidemiology, in Fall of 2023. We are interested in candidates

with strong teaching expertise who can teach introductory biostatistics, principles of epidemiology, and quantitative methods courses, and Introduction to Community Health. apply.interfolio.com/112630.

Minnesota

■ The Division of Biostatistics, School of Public Health, University of Minnesota, seeks applicants for a tenured/tenure-track associate or full professor to serve as the associate director of the coordinating centers for biometric research (<https://ccbr.biostat.umn.edu>). Candidates should have a track-record of high-impact collaborative and multi-center clinical research, as well as a history of externally funded research. Please visit <https://hr.myu.umn.edu/jobs/ext/351301> for additional information or to apply.

■ The Division of Biostatistics, School of Public Health, University of Minnesota, seeks applicants for two tenured/tenure-track open rank faculty positions. We are especially interested in individuals with interests in genetics, genomics/other 'omics' data, multi-omics analysis, machine learning,

biomedical imaging, imaging genetics, computational statistics, wearable data, and other areas under the broader umbrella of data science. Please visit <https://hr.myu.umn.edu/jobs/ext/351279> for additional information or to apply.

Ohio

■ The Denison University Department of Mathematics invites applications for two tenure-track positions starting Fall 2023 in statistics or applied mathematics. Successful candidates are expected to be excellent teacher-scholars with active student-centered pedagogy and vibrant research programs, and engaged members of the Denison community. Rank is negotiable based on prior experience. Look for our ad on MathJobs or Denison's employment page. <https://apply.interfolio.com/110936>

Texas

■ Four open-rank tenure-track (<http://apply.interfolio.com/106555>) and four instructional-track (<http://apply.interfolio.com/109514>) positions are open for applications in the Department of Epidemiology and Biostatistics, School of Public Health (CEPH-Accredited), Texas A&M University. Texas A&M is an R1 Carnegie Classification, Association of American Universities (AAU) state-funded institution with triple designation as a land-, sea-, and space-grant university. Cluster hires are possible, and salary will be commensurate with experience. ■

ASA SECTIONS STUDENT PAPER COMPETITION

The winners of the best paper competitions earn **travel awards** to ASA-sponsored conferences

Special instructions for each section are available on the ASA website

www.amstat.org/studentpapercomps

UCI Department of Statistics

Donald Bren School of Information & Computer Sciences



Tenure-Track/Tenured Faculty Position

The Department of Statistics (www.stat.uci.edu) in the Donald Bren School of Information and Computer Sciences (ICS) at the University of California, Irvine (UCI) invites applications for a tenure-track/tenured faculty position at the assistant, associate, or full rank level beginning July 1, 2023. The Department of Statistics has a strong interdisciplinary flavor, focused on developing state-of-the-art methods for solving topical data-driven problems in science and engineering, and advancing the statistical theory that underlies those methods. We are searching for faculty with strong research potential, a commitment to excellence in teaching, and enthusiasm for helping our collegial department continue to grow. Applicants should hold a Ph.D. degree (or expected by fall 2023) in statistics, biostatistics, or a related field. Candidates with research interests in all areas of statistics will be considered.

The Donald Bren School of Information and Computer Sciences (ICS) at the University of California, Irvine (UCI), is one of only five computing-focused schools among the Association of American Universities (AAU) members. The U.S. News and World Report 2022 Best Global Universities ranking identifies UCI as a top 100 university in computer science and one of the top 30 universities for a graduate degree in computer science in the United States. The School's 100+ faculty members include 2 NAE Members, 14 ACM Fellows, 11 IEEE Fellows, 10 AAAS Fellows and many other national and international award winners. The University of California, Irvine is ranked as a top 10 public university by U.S. News and World Report, has been identified by The New York Times as No. 1 among U.S. universities that do the most for low-income students, and is No. 3 in the nation for diversity according to The Wall Street Journal/Times Higher Education. UCI has also done what no other school has done - rank among Sierra's Top 10 most sustainable colleges for 12 years in a row. UCI is located in Orange County, 4 miles from the Pacific Ocean and 45 miles south of Los Angeles. Irvine is one of the safest communities in the U.S. and offers a very pleasant year-round climate, numerous recreational and cultural opportunities, and one of the highest-ranked public school systems in the nation. All positions would be eligible to participate in UCI's faculty housing program.

Completed applications containing a cover letter, curriculum vita, graduate transcripts, statements on diversity, teaching, and research, three letters of recommendation, and sample research publications should be uploaded electronically. Please refer to the following web site for instructions <https://recruit.ap.uci.edu/JPF07815>. The review of applications will begin November 11, 2022, but applications will be accepted until November 30, 2022.

The University of California, Irvine is an Equal Opportunity/Affirmative Action Employer advancing inclusive excellence. All qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, disability, age, protected veteran status, or other protected categories covered by the UC nondiscrimination policy.

NC STATE UNIVERSITY

Department of Statistics Tenure-Track Faculty Positions

The Department of Statistics at North Carolina State University in Raleigh, North Carolina seeks to hire multiple tenured/tenure-track faculty. All ranks will be considered. The start date is August 2023.

Applicants with interests and expertise in theoretical or methodological research in any area of statistics or biostatistics will be considered. Candidates with interests in data science, machine learning, and modern methods of data analysis more generally are encouraged to apply. The ability and desire to supervise graduate student research and to pursue excellence in teaching are essential.

To apply, please visit: <https://jobs.ncsu.edu/postings/169840>

The Department provides a dynamic environment for teaching, research and collaborations across disciplines. This position will be expected to foster an environment that is supportive, welcoming of all groups, and abides by our cultural and behavioral aspirations.

Please visit <https://sciences.ncsu.edu/about/strategic-planning/culture-charter>. We are interested in candidates who have a demonstrated commitment to improving access to higher education for students from underrepresented groups.

The Department's location in the Research Triangle provides rich opportunities for interactions with industry; other universities, including Duke University and the University of North Carolina at Chapel Hill; and government agencies. Faculty enjoy collaborations with medical researchers at Duke, environmental scientists at the EPA research facility, pharmaceutical researchers at Glaxo-SmithKline, and software developers at SAS Institute, among many others.

All applicants must have a Ph.D. in Statistics, Biostatistics, Data Science, or a related field by the time of employment. Review of applications will begin soon and will continue until the positions are filled. Questions about the search may be directed to the Search Committee Chair: group-stats-search@ncsu.edu

NC State University promotes equal opportunity and prohibits discrimination and harassment based upon one's age, color, disability, gender identity, genetic information, national origin, race, religion, sex (including pregnancy), sexual orientation and veteran status.

**Institute of Statistical
Science, Academia Sinica,
Taiwan**

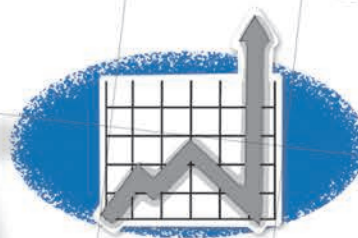
**Tenure-Track Faculty
Positions**

The Institute of Statistical Science of Academia Sinica is pleased to invite applications for our tenure-track faculty positions. Academia Sinica, the most preeminent academic research institution in Taiwan, offers a secured research environment facilitated with rich collaboration opportunities as well as the freedom of conducting independent research. With a strong tradition of theoretical and interdisciplinary research, the Institute of Statistical Science is aiming for global excellence in mathematical statistics and various statistical applications.

Applications are invited for tenure-track appointments as Full/Associate/ Assistant Research Fellows (equivalent to Full/Associate/Assistant Professors in Universities) at the Institute of Statistical Science to commence on August 1, 2023 or as soon as possible thereafter. Applicants should possess a Ph.D. degree in Statistics, Biostatistics, Computer Science, Data Science or related areas, and should submit: (1) a cover letter, (2) an up-to-date curriculum vita, (3) a detailed publication list, (4) a research proposal, (5) three letters of recommendation, (6) representative publications and/or technical reports and (7) advisers' names of master and PhD degrees. Additional supporting materials such as transcripts for new Ph.D. degree recipients may also be included. Electronic submissions are encouraged. Applications should be submitted to

Dr. Hsin-Chou Yang
Chair of the Search Committee
Institute of Statistical Science,
Academia Sinica
128 Sec. 2 Academia Road, Taipei
11529, Taiwan, R.O.C.
Fax: +886-2-27886833
E-mail: recruit@stat.sinica.edu.tw

Application materials should be received by **December 16, 2022** for consideration, but early submissions are encouraged.



Strength in Numbers

Join the 300+ strong and diverse community of U.S. Census Bureau mathematical statisticians—at the heart of the statistical quality of our demographic and economic census, surveys, and research.

Your Work as a Mathematical Statistician at the Census Bureau

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

Requirements

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

Apply at www.census.gov, click on Census Careers, Type of Position, Professional/Scientific/Technical, Math Statistician

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



U.S. Department of Commerce
Economics and Statistics Administration
U.S. CENSUS BUREAU
census.gov



2023-2024 Long Programs

Algebraic Statistics and Our Changing World

September 18-December 15, 2023

Data-Driven Materials Informatics

March 4-May 24, 2024

The Institute for Mathematical and Statistical Innovation invites applications for Research Memberships for each of its 2023-24 long programs. Financial support is available. Research Members typically spend at least two weeks in residence during the course of a program. For more information, and to apply, see:

<https://www.imsi.institute/programs>

Propose an Activity

IMSI welcomes proposals for research activity involving applications of statistics and mathematics to problems of significant scientific and societal interest. Areas of specific interest are climate & sustainability, data & information, health care and medicine, materials science, quantum computing and information, and uncertainty quantification. There are two proposal cycles each year, with deadlines on March 15 and September 15. Typical frameworks for activity include:

- Long programs
- Workshops
- Interdisciplinary Research Clusters
- Research Collaboration Workshops

For more information, see <https://www.imsi.institute/proposals>. To discuss ideas before submitting a proposal, please contact the Director at director@imsi.institute.



Institute for Mathematical and Statistical Innovation
1155 East 60th Street
Chicago, Illinois 60637
info@imsi.institute

AMSTATNEWS

ADVERTISING DIRECTORY

Listed below are our display advertisements only. If you are looking for job-placement ads, please see the professional opportunities section. For more job listings or more information about advertising, please visit www.amstat.org.

misc. products and services

Institute for Mathematical and Statistical Innovation p. 47
SIAM cover 2

professional opportunities

Institute of Statistical Science, Academia Sinica p. 46
North Carolina State University p. 45
University of California p. 45
US Census Bureau p. 46

software

SAS cover 3
STATA cover 4

This month's Top 10 is the 'Top Ten **Statistical Terms That Sound Like Medical Problems.**'



Wasserstein

Amstat News continues its hilarious offering by ASA Executive Director **Ron Wasserstein**. Each month, he delivers a special Top 10—one that aired during a recent edition of the *Practical Significance* podcast. This month's Top 10 is the "Top Ten Statistical Terms That Sound Like Medical Problems."

10

Heteroskedasticity



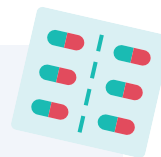
09

Kriging



08

Persistent Homology



07

Big P Small N



To listen to the *Practical Significance* podcast, visit <https://magazine.amstat.org/podcast-2>.

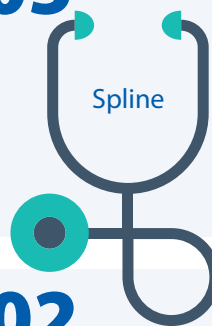
06

Backward Elimination



05

Spline



04

Kullback-Leibler Divergence

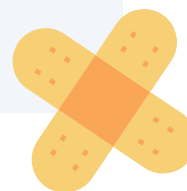


03

Second-Order Convergence

02

Asymptotic



#01

Kurtosis



WHAT'S EASY TO SEE IN OUR CLOUD? OPPORTUNITY.

It's easier than ever to access advanced cloud analytics with SAS® Viya® on Microsoft Azure. Viya is optimized for Azure, which means it's easier to find, share and analyze information all in one place. So more people can ask the questions that lead to more opportunities. Together, SAS and Microsoft make it easier to find answers in the cloud.

Learn how at sas.com/microsoft



SAS and all other SAS Institute Inc. product or service names are registered trademarks or trademarks of SAS Institute Inc. in the USA and other countries.
® indicates USA registration. Other brand and product names are trademarks of their respective companies. © 2022 SAS Institute Inc. All rights reserved. G205981.0822



STATA®

Statistical software for data science.

Explore. Visualize. Model. Make a difference.

Fast. Accurate. Easy to use. Stata is a complete, integrated software package that provides all your data science needs—statistics, visualization, data manipulation, and reporting. It is easy to learn through the extensive graphical interface yet completely programmable for the most demanding statistical requirements.

Learn how Stata can help take your analyses even further.

stata.com/amstat-ds

© 2022 StataCorp LLC
Stata is a registered trademark of StataCorp LLC
4905 Lakeway Drive • College Station, TX 77845 • USA