May 2022 • Issue #539

AMSTATNEWS

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MAY 2022 • ISSUE #539

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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

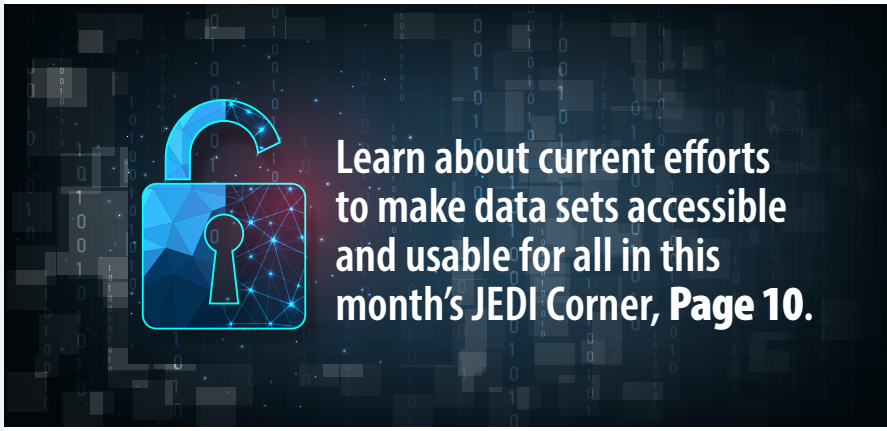
5 *Significance* Highlights: David Cox Passing, COVID-19 Data Lead April Issue

5 ASA Applauds DHS Designation of Data Science as STEM Field

6 Meet Peggy Carr, Commissioner for Education Statistics

8 My ASA Story: Matt Hayat, Professor of Biostatistics

10 JEDI Corner: Promoting Diversity in Data Repository Research



columns

12 **STAT*tr@k***
Pursuing Your PhD? There's a Website for That

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

14 **STATS4GOOD**
ASA Partnerships Promote Data for Good

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

Career Development

Looking for upcoming career development events and activities? Join the Committee on Career Development email list at *bit.ly/CCDEmailList* to stay informed!

ASA Project Competition

This competition is for students in grades 7–12. For the purposes of this competition, a statistical project is the process of answering a research question using statistical techniques and presenting the work in a written report. Winners will be announced in August. Deadline is June 1. *bit.ly/37qRCq6*

CORRECTION

The April issue of *Amstat News* had an error in the Chief Statistician of the United States article. Katherine Wallman was CSOTUS from 1992–2017.

departments

16 **statistician's view**

A Call for More Graduate Programs in Statistics Education

AUGUST 6–11

JSM 2022 WASHINGTON, DC

STATISTICS: A FOUNDATION FOR INNOVATION

Join us in DC!

18 **meetings**

JSM Is on Its Way to DC

Meet the JSM 2022 Featured Speakers

JSM Has Much in Store for Students

Events, Networking Activities, and Places to Go During JSM

2022 COPSS Award Winners

Elizabeth L. Scott Award Goes to Madhu Mazumdar

Nancy Reid to Deliver 2022 COPSS Distinguished Lecture

member news

28 People News

30 Awards and Deadlines

31 Section • Chapter • Committee News

35 Professional Opportunities

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JSM 2022 Statistics: A Foundation for Innovation

Crowdsourcing the Innovations

Katherine Ensor

Have you registered for JSM 2022? After two years of virtual JSMs, I am eager (actually more than eager—let me dare use the word thrilled) to come together and celebrate our contributions in Washington, DC.

As the ASA president, I had the privilege of selecting this year's JSM theme. I chose *Statistics: A Foundation for Innovation* to recognize the essential contributions of our discipline. I am continuing with this theme through my presidential address, titled "Celebrating Statistical Foundations Driving 21st-Century Innovation." Participating in JSM has shaped my professional identity, and I am grateful for the opportunities to give the presidential address and select the president's invited speaker.

At JSM 2022, important contributions will be recognized by featured speakers, including David L. Banks of Duke University (Deming Lecture), Madhu Mazumdar of the Icahn School of Medicine at Mount Sinai (COPSS Elizabeth L. Scott Lecture), Dylan Small of the University of Pennsylvania and Huixia Judy Wang of The George Washington University (Medallion Lectures), and Nancy Reid of the University of Toronto (COPSS Distinguished Achievement Lecture).

With your help, I plan to showcase our contributions in my JSM talk, which might include the following:

- The foundational impact of statistics on the development and implementation of autonomous vehicles as explored by a working group convened by 2019 ASA President Karen Kafadar
- The Statistical Significance series (*bit.ly/3rBKzS7*), developed in 2017 by ASA sections and the Scientific and Public Affairs Committee to highlight the contributions statisticians make to society—from health care and the economy to national security and the environment
- Podcasts supported by the ASA such as the *ASA Biopharm's Podcast* (*bit.ly/BIOPPod*), *Stats+Stories* (*https://statsandstories.net*), and *Practical Significance* (*https://magazine.amstat.org/podcast-2*)
- David Donoho's *Journal of Computational and Graphical Statistics* article, "Fifty Years of Data Science" (*bit.ly/3Mkg3nT*), which illustrates the statistics community's long-term development and contributions to this dynamic area
- Andrew Gelman and Aki Vehtarib's *Journal of the American Statistical Association* article, "What Are the Most Important Statistical Ideas of the Past 50 Years?" that identified counterfactual causal inference, bootstrapping and simulation-based inference, overparameterized models and regularization, Bayesian multilevel models, generic computation algorithms, adaptive decision analysis, robust inference, and exploratory data analysis

SHARE YOUR THOUGHTS!

What statistical foundations driving 21st-century innovation would be included on your list? And why? **Please share your thoughts** with me using the form at ***bit.ly/StatInnovationJSM*** or on Twitter using **#statsinnovations**. I look forward to a dynamic and informative discussion.

Moving to my next piece of exciting JSM news, I am delighted to announce that Reginald DesRoches, who has served as Rice University's provost since 2020 and will become its eighth president in July, has

agreed to be my invited speaker. DesRoches first joined Rice as dean of the George R. Brown School of Engineering. He came to Rice from Georgia Tech, where he served as chair of civil and environmental engineering, leading that department to No. 2 in the nation.

At Rice, the statistics department resides in engineering, so DesRoches knows our community well. We have seen significant growth in statistics and data science under his leadership, as he is a strong voice for the foundational and important contributions provided by our field. He has been an exceptional proven and transformative leader since day one, and I am simply thrilled (there I go using that word again) that he has agreed to speak to our community. I guarantee you will enjoy his invited address and leave with a forward perspective of how we collectively contribute to a better society.

Let me provide a bit more introduction of provost and soon to be president DesRoches. His primary research interests are in the design of resilient infrastructure systems under extreme loads and the application of smart materials. His research is highly interdisciplinary and spans micro- to macroscales. He has published approximately 300 articles and delivered more than 100 presentations in more than 30 countries. As someone who studies risk and resilience, he has a strong appreciation for the importance of statics in many fields, including his own.

DesRoches is a member of the National Academy of Engineering and has been recognized for both the impact and innovation of his research. He received the Distinguished Arnold Kerr Lecturer Award in 2019 and the John A. Blume Distinguished Lecturer Award and Earthquake Engineering Research Institute Distinguished Lecturer Award—one of the highest honors in the field of earthquake engineering—in 2018. He is also a recipient of the 2015 American Society of Civil Engineers Charles Martin Duke Lifeline Earthquake Engineering Award, the 2007 ASCE Walter L. Huber Civil Engineering Research Prize, and the Georgia Tech ANAK Award, which is the highest honor the Georgia Tech student body can bestow on a faculty member.

DesRoches is a member of the Academy of Distinguished Alumni in Civil Engineering at Berkeley and was recently named an honorary alumnus of Georgia Tech. A fellow of the American Society of Civil Engineers and the society's Structural Engineering Institute, he served as the key technical leader in the United States' response to the 2010 Haiti earthquake, taking a team of 28 engineers, architects, city planners, and social scientists to study the impact of the earthquake. He chairs the National Institute of Standards and Technology National Construction Safety Team Advisory Committee and is on the California Department of Transportation Seismic Advisory Board.

Born in Port-au-Prince, Haiti, DesRoches grew up in Queens, New York. He earned his bachelor of science in mechanical engineering and master of science in civil engineering degrees and a doctorate in structural engineering at the University of California, Berkeley.

As I have had the opportunity to engage with departments, sections, and chapters, my belief that statistics is a foundation of innovation has been affirmed and strengthened. I look forward to celebrating our discipline at JSM 2022 in Washington, DC.

SIGNIFICANCE HIGHLIGHTS

David Cox Passing, COVID-19 Data Lead April Issue

Sir David Cox died on January 18 at the age of 97. News of his passing was met with an outpouring of tributes. To the Royal Statistical Society, he was "one of the most important statisticians of the past century." At Nuffield College, Oxford, he was hailed as "a pioneering statistician." The MRC Biostatistics Unit at Cambridge called him "a giant in the field," while at St John's College, Cambridge, he was celebrated as "an inspiring scholar." In a special 12-page collection of articles in this issue, friends and colleagues remember Sir David in their own way, while also reflecting on his immense contributions to statistics.

Also in the April issue, we mark two years of the COVID-19 pandemic with a selection of pieces on COVID data, lockdowns, modeling, and student learning.

Plus:

- When the COVID-19 pandemic began, statisticians, epidemiologists, and journalists around the world accepted the challenge of trying to explain to the public exactly what was happening and drawing insights from the mass of data being produced. Timandra Harkness interviews three individuals about their experiences of becoming COVID communicators.
- Sharing data and code as part of a research publication is crucial for ensuring the computational reproducibility of scientific work. But sharing should be done at the article submission stage, not after publication as it is now, say Rachel Heyard and Leonhard Held.
- Monika Frątczak shares findings from her PhD research exploring emotional responses to data visualizations and engagement with climate-related issues.

Access the digital version of *Significance* through ASA or RSS member portals (*bit.ly/3M4RoU6*) or download and read the magazine on the go with our iOS and Android apps (*bit.ly/2BdoGh3*). Print issues will be mailed to subscribers soon.

Significance is online at *www.significancemagazine.com.* ■

ASA Applauds DHS Designation of Data Science as STEM Field

In response to the Department of Homeland Security's announcement that they amended the STEM degree program list to include data science in its science, technology, engineering, and math Designated Degree Program List, ASA Executive Director Ron Wasserstein issued the following statement:

"We applaud the decision by the DHS to include data science in its program degree list for STEM fields. With its foundational components of statistics, computing, database management, and math, data science rightfully belongs on this list. We thank members of the academic and data science communities who also urged its inclusion."

The DHS STEM Designated Degree Program List determines the fields of study for which students on an F-1 visa can apply for a 24-month STEM optional practical training extension.

Read the full DHS announcement at *bit.ly/3xnjINz* and view the Designated Degree Program List at *bit.ly/3xpWBBW.*

Meet Peggy Carr, Commissioner for Education Statistics

On August 24, 2021, President Joe Biden announced the appointment of Peggy G. Carr as commissioner of the National Center for Education Statistics in the Institute of Education Sciences at the US Department of Education. Prior to serving as commissioner, Carr was the associate commissioner for assessment at NCES, where she oversaw the National Assessment of Educational Progress and a portfolio of large-scale international assessments, including the Program for International Student Assessment and Trends in International Mathematics and Science Study. Carr also served as acting commissioner of NCES between 2016 and 2018. Here, she answers a few questions so we can get to know her better.

What about this position appealed to you?

The role of the commissioner for education statistics in reporting on the condition of education in this country has deepened in scope and relevance over the past 150 years, which is how long the US Congress has recognized and supported the importance of education in this country. However, access to a quality education, the most critical pathway to achieving the American dream, is not a given. Accordingly, for me, the appeal of this position lies in the importance of reporting on the condition of education in the context of equity. And in no other time greater than today, has diversity—in all its kinds and shapes—defined what it means to live meaningfully, comfortably, and equitably in this country.

As the first woman and person of color to be presidentially appointed to the position, I have experienced firsthand why it's critical to monitor and report on education indicators and other federal education research that enable *all* communities to see themselves in our statistics.

Describe the top 2–3 priorities you have for the National Center for Education Statistics.

As a career staffer within the US Department of Education for decades, I've had ample time and opportunity to formulate a vision for the National Center for Education Statistics. I have three priorities: (1) innovate; (2) strengthen partnerships; and (3) improve the integration of equity throughout our methodologies in achieving the center's mission.

The emergence of the reconceptualized field of data science and a world in which technology is ubiquitous to everything we do means decades-old data collection methods, analytical techniques, tools, and even ways of reporting and disseminating information and data have significant room for improvement and innovation. Such innovations also translate into new forms of indicators (i.e., digital process data), better ways of measuring old constructs, and computing power for managing and linking data sets that can be executed in seconds, not days.

Similarly, with minimum effort, NCES can reduce burden on its local and state partners through improved efficiencies in sampling, participation coordination, and improved two-way communication channels. For example, NCES needs to strengthen its partnerships by employing liaisons with 'boots on the ground.'

And finally, by improving the integration of equality throughout our procedures for collecting, analyzing, and reporting on statistical education indicators, we can better illuminate the condition

of education—our core mission. Even who is sitting around the table when program decisions are made should not be exempted from this priority.

What do you see as your biggest challenge(s) for NCES?

Complacency. *"If it's not broke, why fix it?"* The good news is NCES career staff are some of the most highly satisfied and motivated employees in the federal system—they love what they do and see immense value in their role in improving the American education system. However, these assets can also have negative implications. Great employees with decades-long careers are good at what they do, but it means change is hard.

NCES needs to do a better job of (a) keeping staff engaged and participating in their professional communities, (b) implementing effective succession planning, and (c) attracting and retaining new talent. It's hard to compete against the Googles of the world, but that's essentially what we are doing. We need effective strategies for engaging and incentivizing new and bright talent to stay when they venture into the world of public service.

How can the statistical community help you?

To remain in the forefront of state-of-the art methods, technologies, analytical tools, and reporting, NCES needs more statisticians, psychometricians, data scientists, and program analysts while significantly decreasing its reliance on contracts for meeting its mandate. NCES is the third largest of the 13 federally recognized statistical agencies, but about ninth when ranked by its ratio of staff to dollars spent and the scope and diversity of its programs.

While NCES is unlikely to ever catch up with its similarly situated statistical agency peers in staffing, even a modest increase in staff would result in notable contributions to the education community. This is because NCES staff are extremely knowledgeable of its rich and complex data sets and could contribute so much more to the dialogue within the education statistical community if it had better bandwidth. I am confident that stakeholders who are advocates for richer, more actionable education statistics and who are friends of NCES know and support this plight.

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

In recent years, successfully moving the National Assessment of Educational Progress from paper and pencil to digital assessments using a well-designed scientific bridge study to protect decades of mathematics and reading trend lines was a major accomplishment. Equally important, NAEP's leadership role in the large-scale assessment industry in capturing the digital process clicks from those assessments and using them for improving item development instruction design, quality control, and analysis and reporting is particularly noteworthy.

The good news is NCES career staff are some of the most highly satisfied and motivated employees in the federal system—they love what they do and see immense value in their role in improving the American education system.

On the administrative side, the use of geospatial technology linking Census data and NCES surveys to explore better indicators of school poverty is groundbreaking and has great promise for improving measures of socioeconomic status for local, state, and federal agencies.

And I would be remiss if I did not mention how effective NCES was in demonstrating how nimble and flexible it was capable of being in the wake of COVID-19. As a partial response to the COVID-19 health crisis, NCES administered—in record time—its first monthly pulse survey of schools and the impact of the pandemic on schools, educators, and instruction. ■

MY ASA STORY

Matt Hayat, Professor of Biostatistics

My first JSM was in Chicago in 1996. I was nearly done with my master's degree program in statistics at Northern Illinois University and had joined the ASA earlier that summer. I remember attending some local talks on statistical topics in pharma put on by the Chicago Chapter, but that JSM was my first real exposure to the ASA. The conference was located a few blocks from my job with the statistical research group at CNA Insurance in downtown Chicago. It was fun to be around so many other people in the same field. It was also easy to figure out who the statisticians were. That JSM bag was a dead giveaway.

Later in 2011, while working as an assistant professor in the school of nursing at the Johns Hopkins University, I became interested in networking with statisticians in other academic nursing programs. JSM 2011 was the perfect outlet for this, and it didn't hurt that it was held in the tropical paradise of Miami Beach.

I teamed up with a handful of others like me to organize both a topic-contributed paper session and a roundtable discussion on statistics in nursing research. There was much interest and excitement, and it has resulted in a decade of community, scholarship, and friendship. We created an electronic mailing list that is in its eleventh year with 52 members and have subsequently organized many sessions at most JSMs since. The network continues to gather annually at JSM for a social hour and numerous collaborations have developed as a result.

At JSM 2018 in Vancouver, I had a fun, rare networking experience of a different kind. Some background: At the end of 2015, I unexplainably lost all my hearing. I was fortunate to have surgery three months later and receive cochlear implants (aka "bionic ears"). Before losing my hearing, I had not known anybody with bionic ears. However, I was asked to present in a topic-contributed paper session about quantitative literacy at JSM 2018. I had not met the last speaker in our group, Regina Nuzzo. When she got up to speak, I was so surprised to see she also had a cochlear implant on her head! What are the chances?! We have still not figured out how to estimate the probability of this rare occurrence but have become good friends and still laugh about the experience. It was great how the ASA brought us together, even accidentally.

Matt Hayat

My career path as a collaborating biostatistician and statistics educator has brought me much meaning and joy, and the ASA has been a central thread throughout.

I am passionate about statistics education, quantitative literacy, and making statistics knowledge

From left: Matt Hayat, Martina Mueller, Wei Pan, Janet Rothers, Alai Tan, Yelena Perkhounkova, and Melinda Higgins enjoy happy hour at JSM 2018 in Vancouver, British Columbia, Canada.

broadly accessible. ASA involvement has offered me so many opportunities to pursue these passions. I became active in the Section on Statistics and Data Science Education and served as its Council of Sections representative for three years.

In 2016, Nick Horton invited me to participate as a founding member of the ASA Committee on Statistical Education Mentoring, and in 2018, I had the opportunity to chair that committee. That has been a meaningful experience, connecting and working with so many ASA community members interested in mentorship or mentoring.

Another incredible venture has been serving since 2014 as an associate editor for the ASA-sponsored *Journal of Statistics and Data Science Education*. In 2018, we developed a new section of the journal—the first of its kind—focused on statistics education in the health sciences.

More recently, I served on the ASA Accreditation Committee at the invitation of Ron Wasserstein. That has been interesting and helped me to better appreciate the multitude of career paths that exist in our field.

Finally, in the midst of the pandemic and this extraordinary time, I was ecstatic to have been inducted as a 2021 ASA Fellow. My career path as a collaborating biostatistician and statistics educator has brought me much meaning and joy, and the ASA has been a central thread throughout. It was an honor to be recognized along with so many amazing individuals. I look forward to more fun and meaningful JSMs in the future. ■

ASA AWARDS & RECOGNITION

Know of a deserving person who should be considered for ASA recognition? The ASA's extensive awards program recognizes statisticians who have made outstanding contributions through areas such as:

RESEARCH
CONSULTING
TEACHING
STUDENT SCHOLARSHIPS
SERVICE to the association or profession

Nominate Someone Today! *www.amstat.org/awards*

JEDI CORNER

Promoting Diversity in Data Repository Research

The Justice, Equality, Diversity, and Inclusion 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 JEDI Outreach Group member Cathy Furlong at* communicate@datascijedi.org.

Stephanie Cook is the director of the Attachment and Health Disparities Research Lab at the New York School of Global Public Health. Currently, the AHDL is made up of about 20 undergraduate, graduate, and postdoctoral fellows. Follow Stephanie @DrStephanieCook.

Erica P. Wood is a third-year doctoral candidate at the New York University School of Global Public Health. Her primary research lies in examining how intersecting forms of discrimination (e.g., racial/ethnic-related, gender identity–related) influence health and health behaviors among sexual and gender minorities. Follow Erica @ericapwoodMPH.

The National Institutes of Health is investing resources in constructing secure data repositories in which researchers and community members are able to use publicly available data. Once such program is the NIH's All of Us Research Program (*https://allofus.nih.gov*), which has expanded its Researcher Workbench (*www.researchallofus.org/data-tools/workbench*) to include data contributed by more than 329,000 participants, about 80 percent of whom are from communities that have been historically underrepresented in biomedical research. The Researcher Workbench now includes the following:

- **Survey data for 329,000+ participants** (e.g., lifestyle factors, access to care, medical history, data from nearly 100,000 participants on their experiences during the COVID-19 pandemic)
- **Physical measurements for 267,600+ participants** (e.g., blood pressure, heart rate, BMI)
- **EHR data for 214,200+ participants** (e.g., demographics, visits, diagnoses, and medications data harmonized according to the program's common data model)
- **Fitbit data for 11,700+ participants** who linked their personal data to their All of Us accounts
- **Whole genome sequences for 98,600+ participants**

The latest data release includes a 42 percent increase in participant Fitbit records on activity levels and heart rate, making it one of the largest and most diverse publicly available sets of digital health technology data available. Additionally, the update includes an ample collection of survey data gathered from late 2020 through early 2021 on participants' daily life, health, and well-being throughout the COVID-19 pandemic. Building on responses provided in similar surveys from May to August 2020, this data offers a longitudinal view of the impact over more than eight months of this global health emergency and represents the biggest infusion of mental health data into the Researcher Workbench so far.

More than 1,000 researchers across more than 309 institutions have already begun using the All of Us Researcher Workbench to conduct rapid, hypothesis-driven studies and build new methods for the future. The All of Us Research Hub also offers the ability to explore aggregated, publicly available data in the program's **Data Browser** (*https://databrowser.researchallofus.org*) and read about current projects underway in the **Projects Directory** (*www.researchallofus.org/research-projects-directory*) and **Spotlights** (*www.researchallofus.org/spotlight*). Further, there are tutorials, office hours for anyone who has questions, and staff available to help onboard new researchers to the workbench.

We are in an era in which large data repository systems like All of Us continue to emerge and enhance a researcher's capability to capture and analyze information in many ways. However, even with substantial resources being poured into promoting the use of a resource such as All of Us, barriers remain to enabling and empowering underrepresented researchers to take advantage of these data repository ecosystems, including usability and training.

To achieve equity, the utility of the data sources must not only be accessible, but also *usable*. The All of Us Research Program has collaborated with historically Black colleges and universities (e.g., Xavier University of Louisiana, Tuskegee University) to promote the use of the data to traditionally underrepresented minorities. In addition, the program supports a researcher ambassador network that enables researchers from diverse backgrounds to create and implement strategies (e.g., webinars) to increase the representation of the All of Us Researcher Workbench.

However, statistical analysis programs such as R and Python are the foundation by which research is conducted on many of these large data repository systems. These programs often present usability and access barriers when programs such as Stata or SPSS are preferred or taught. With limited ability to analyze the data, many of these efforts to promote All of Us as a tool to support underrepresented researchers may have limited success. Coupling engagement efforts with the promotion of creating diverse project teams that include statisticians, content experts, and community partners—when applicable—is one potential solution.

Project teams used throughout the health sciences and beyond are a means to creating a cohesive team that can bring an important scientific idea to fruition through an integrative and, many times, innovative process. For instance, the William T. Grant Foundation supports research that aims to reduce inequality in the academic, social, behavioral, and/or economic outcomes of young Americans. The foundation seeks to support a diverse array of scholars in terms of socioeconomic background, race/ethnicity, etc. to best address the effect of inequality among youth. Moreover, the foundation has their Interdisciplinary Research Leaders Program, in which individuals from diverse socioeconomic, racial/ethnic, and disciplinary backgrounds form teams to research pressing issues with respect to health inequities. Such an approach enables a multi-disciplinary perspective while providing support for underrepresented researchers to use and improve upon their skills. Supporting this type of approach could alleviate some of the limitations around statistical software or statistical expertise and promote multidisciplinary collaboration.

Beyond All of Us, we must—as a society—broadly invest in meaningful training for our students and early-career faculty from underrepresented communities. All of Us has collaborated with its partners to create mentorship opportunities for students from diverse backgrounds with the aim of supporting these students in developing the statistical and methodological skills to use this and similar data sources; however, more is needed.

MORE ONLINE
Learn about or participate in the NIH All of Us Research Program at *www.researchallofus.org/data-tools/workbench.*

To achieve equity, the utility of the data sources must not only be accessible, but also *usable*.

Programs such as Columbia University's BEST Diversity Program or New York University's Pipelines into Quantitative Aging Research Summer Program have shown that we must start early and provide students from underrepresented backgrounds with much financial and tangible support.

Shifting the paradigm is not easy and requires considerable time and resources. As statisticians, it is important that we get involved, spread the word, and do the work. The All of Us Research Program and its Research Workbench continue to push the envelope to make those paradigm shifts. Accordingly, we should commit ourselves to supporting underrepresented communities at every stage of their educational and professional journeys. By providing financial and educational resources to these communities in addition to important data sources, we can foster multidisciplinary research endeavors that aim to reduce health inequities. ■

STAT*tr@k*

Pursuing Your PhD? There's a Website for That

Sara Teichman

Emily Flanagan

Dan Kessler

Anna Neufeld

Interested in pursuing a PhD in statistics but not sure where to start? *StatsPhD.com* is a resource dedicated to making graduate study in statistics more broadly accessible by providing panel discussions that help viewers learn about the process of earning a PhD. The site is curated by a group of volunteer PhD students: Sara Teichman from the University of Washington; Emily Flanagan from the University of California at Berkeley; Dan Kessler from the University of Michigan; and Anna Neufeld from the University of Washington.

We wanted to know more about this resource, so we asked the students, as a group, to answer the following questions.

What is StatsPhD?

StatsPhD is an informal organization composed of volunteer statistics PhD students interested in making graduate study in statistics more broadly accessible. We operate the website *www.StatsPhD.com* and organize publicly accessible events for prospective statistics students.

Who is StatsPhD for?

StatsPhD is for people considering pursuing a PhD in statistics, although we also hope our content is useful to students considering master's degrees and programs in statistics, biostatistics, or related fields. We especially would like to reach students who do not have mentors at their current institutions or workplaces to help them through the graduate school application process.

Who organizes the events, and how can I get in touch with them?

The idea for our first panel came from a meeting between groups focused on diversity, equality, and inclusion at the University of Michigan and University of California, Berkeley. As part of the planning process, we created the *StatsPhD.com* website and later connected with a group of students at the University of Washington who were organizing a similar event. Students from all three universities teamed up to organize and run our most recent panel. You can get in touch with the organizers at *contact@statsphd.com*.

Who are some past panelists?

At our first event, the University of Michigan panelists were Weijing Tang, Michael Law, and Charlotte Zilber Mann, while we had Amanda Glazer, Drew Nguyen, and Jacob Spertus from UC Berkeley. Dan Kessler of the University of Michigan moderated. This year, our panelists were Charlotte Zilbez Mann and Simon Fontaine from the University of Michigan, Anupreet Porwal and Erin Lipman from the University of Washington, and Austin Zane and Tiffany Tang from UC Berkeley. Alex Asemota from UC Berkeley served as moderator. We also had several students from each of the three universities answering questions in the chat.

Recordings of past events are available on the website.

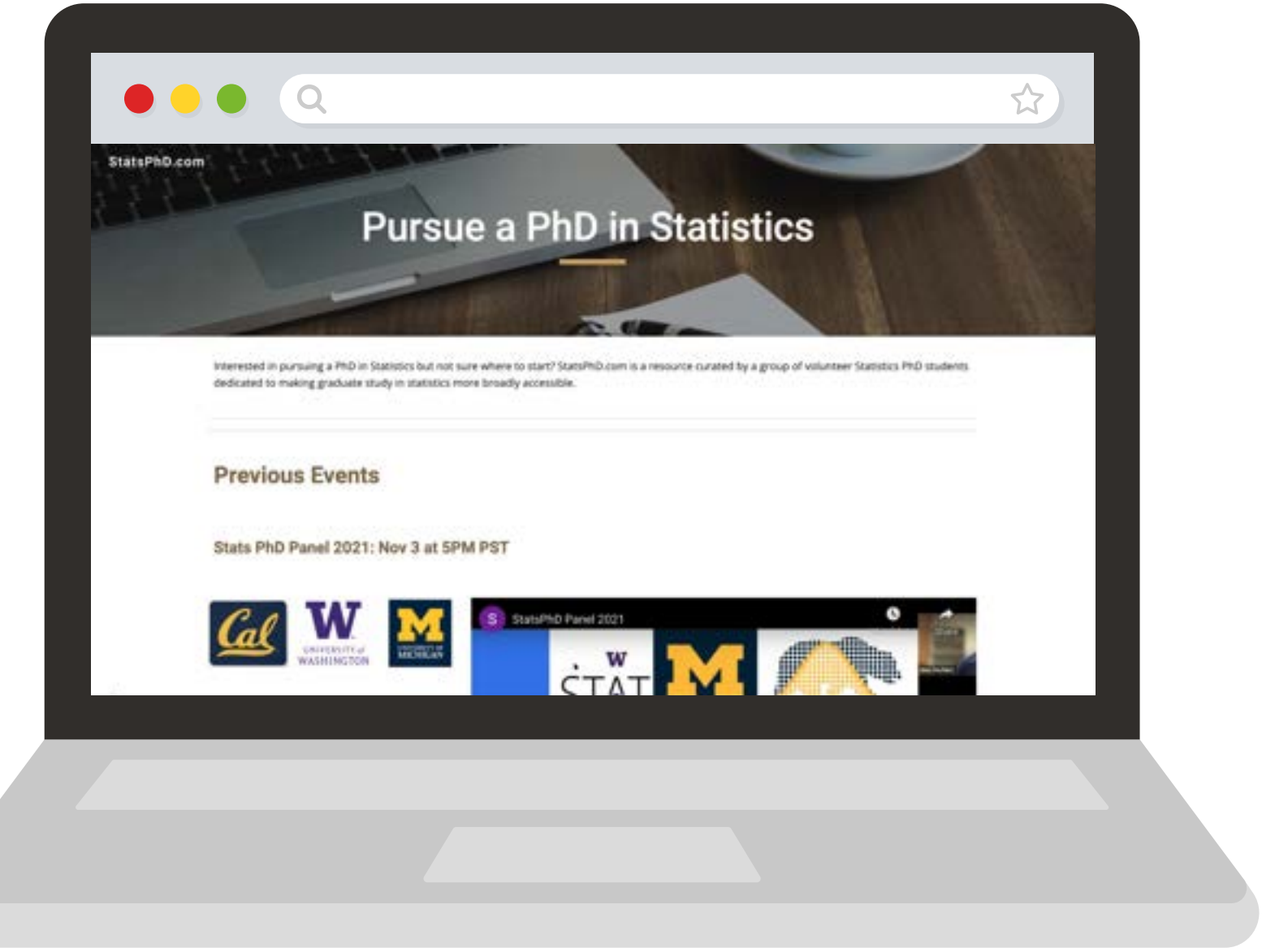
How do you select panelists?

We aim for diversity in experience and background, so we look for students from different departments, domestic and international students, students who started their PhD with or without a master's degree, and students who went to several types of undergraduate institutions.

What are some of the topics discussed and questions answered?

We generally discuss the graduate school application process, what it is like to be a PhD student, panelists' experiences transitioning into graduate school, etc. Example questions include the following:

1. If you considered pursuing a PhD in a related field like math or biostatistics, how did you decide on statistics?
2. What factors did you consider when deciding where to apply?



3. Did you have some potential adviser(s) in mind when you were applying? How did you choose an adviser?
4. What has been the most difficult part of pursuing a PhD in statistics?
5. For any current international students, what advice would you offer to prospective international students?

Is there a plan for more?

Yes! We hope to have another panel next fall.

Who can join the presentations, and is there a registration fee?

Anyone can attend the panels and submit questions, and there is no registration fee.

How do you sign up?

Once we start advertising our panel in the fall, there will be a link to sign up for a Zoom webinar at *StatsPhD.com*.

Want to participate? Contact Teichman at *teichs@uw.edu* and she will add you to a list to reach out to when the group starts planning for next year. ■

STATS4GOOD

ASA Partnerships Promote Data for Good

David Corliss is lead, Industrial Business Analytics, and manager, Data Science Center of Excellence, Stellantis. He serves on the steering committee for the Conference on Statistical Practice and is the founder of Peace-Work.

One of the most important ways the American Statistical Association supports work in Data for Good is through partnerships with other groups. The ASA collaborates with a variety of scientific organizations to promote shared work, create scientific and educational resources, establish funding for scientific research, and advocate for data-driven policy. These partnerships empower high-impact D4G projects, activities, and resources.

One of the most important ASA collaborations is with the National Institute for Statistical Sciences (*www.niss.org*). NISS is an interdisciplinary research institute affiliated with organizations in academia, government, and industry. It falls into three broad roles: an institute providing experts to give neutral and objective reviews of policy and organizations, a research institute in statistical methods with applications in many areas, and a statistical collaborator for complex, interdisciplinary projects. NISS partners with many organizations—including the ASA, Institute of Mathematical Statistics, and International Biometric Society—and a number of leading statistics and data science university programs. NISS experts regularly present at ASA conferences, and their writing workshops for junior researchers are a valuable resource on a subject that too often receives too little attention in university curricula.

I cannot overstate the impact of NISS's expertise, resources, and support for ASA activities. It's something I can speak to myself, having benefitted from a cross-section of NISS programs. I first learned about NISS through interdisciplinary research in astrostatistics. Their webinars and other educational resources have been a valuable tool in my work in industry, especially for developing analytic staff. I have also benefitted from discussions with NISS leaders, especially director James L. Rosenberger, about the development and promotion of Data for Good.

The American Association for the Advancement of Science (*www.aaas.org*) is a world-leading organization for education and collaboration among scientists and the general public. It's also a familiar home for many ASA members (although, as an astrostats person, it would be nice if the organizations I work with most could come with more than two letters for their names—ASA, AAS, AAAS, and SAS). Perhaps best known for publishing the journal *Science*, the AAAS's mission is dedicated to science for the greater good: "To advance science, engineering, and innovation throughout the world for the benefit of all people. Advancing science, Serving society." This makes the ASA's partnership with AAAS especially important for the advancement of Data for Good.

This relationship is so important to the ASA that it formed a committee to promote it. The association's Committee of Representatives to AAAS is composed of eight members, one for each section of the AAAS promoting aspects and applications of statistics. The ASA and AAAS collaborate on developing science policy, advancing the role of statisticians in scientific research, and encouraging ASA members to become involved in AAAS activities. With a mission dedicated to using science for the good of society, membership and participation in the AAAS is a wonderful way to increase the impact of your work in Data for Good.

The ASA also partners with statistical organizations and societies globally. Of the 13 societies participating in the Joint Statistical Meetings, the ASA is the only one focused on the US. The ASA charged its Committee on International Relations in Statistics with establishing and fostering international connections, developing activities and projects,

and keeping ASA members informed about statistical opportunities around the world. Many of these activities have been featured in *Amstat News*, where a search of the archives will pull up articles about a variety of programs. It's a great place to get inspiration for your next D4G project.

One interesting program from the Committee on International Relations is the Educational Ambassador Program, which sponsors statisticians from developing countries—usually two per year—to attend JSM and take what they have learned back to their home country to teach there. Members of the committee select different countries each year, allowing the program to serve statisticians from all over the world.

The ASA collaborates with a range of scientific organizations in which statistical uses and applications are important. One example is the Consortium of Social Science Associations, which advocates for social sciences at the federal level through support for social and behavioral sciences, funding, and promotion of data-driven policy to address critical issues facing society. The ASA is a COSSA member, promoting their work through the Science Policy Office and Scientific and Public Affairs Advisory Committee.

I had a chance to volunteer with COSSA to reach out to members of Congress in 2020. I represented the ASA and advocated for data-driven policy in data for good. I found working with COSSA as an ASA member a valuable experience that strengthened my work in legislative advocacy in data for social good. ■

Getting Involved

In opportunities this month, Imagine Grants from Amazon AWS offers substantial support for using cloud technology in D4G projects. Amazon is looking for registered 501c3 organizations to submit for funding "for pilot projects, proofs of concept, or existing programs that utilize technology in a new or expanded way." Applications will be accepted through June 1. You can get all the details at *https://go.aws/36bcnp0*.

Also this month, the end of the academic year is a good time to plan participation in a D4G summer research project. This isn't only for academic researchers; industry, NGOs, and volunteers can partner with academic researchers on projects that make a difference for the good and well-being of all. The organizations described in this month's column are a wonderful place to start!

A Call for More Graduate Programs in Statistics Education

Sam Behseta, Professor of Statistics, California State University, Fullerton; Cherie Ichinose, Associate Professor of Mathematics Education, California State University, Fullerton; David Drew, Professor of Education, Claremont Graduate University

By most metrics, statistics is still a young discipline, especially in contrast to mathematics and most scientific fields of research and discovery. More importantly, though, statistics is a dynamic field, continuously responding and adapting to the new realms and variations of data.

In the epilogue to their triumphant book *Computer Age Statistical Inference*, Brad Efron and Trevor Hastie showcase a triangular schematic in which the evolution of the field is contextualized, first through applications, motivated by the need for devising effective processes for data collection and data summarization. Subsequently, and inspired by probability theory, there is an overwhelming effort devoted to building theory and appropriate mathematical language, syntax, and framework for statistical inference, as the field was also gradually taking a turn toward computation and responding to the ever-increasing demands for modeling and data analysis. Inexorably, with the advances in modern computing, especially in the first half of the 1950s, there was a natural gravitation toward the center of the triangle, where each of the three components of applications, theory, and computing would end up playing a critical role in what is now perceived as the discipline of statistics.

We sometimes use this graph in our classes when the discussion, almost organically, pivots toward the role of statistics in data science. When viewed through the lens of the triangular presentation, one is hard-pressed to identify the relationship between the two. As such, we are left with the following assertion: Statistics is at the core of data science.

When we add to this story the overwhelming interest in big data, analytics, and predictive modeling, we cannot escape the thought that, quite possibly, while the knowledge and skills in mathematics and computing remain essential, it is statistical thinking that will play the pivotal role in unraveling the information embedded in complex data structures.

This whole idea—coupled with the fact that statistical concepts are bound to have a more prevalent presence in the K–12 curricula across the nation—led us to surmise that the discourse about teaching and learning statistics will have to be prioritized by, at the very least, those involved in the overlapping worlds of statistics and education.

The digital revolution and big data have transformed our society and economy. Statisticians, even those fresh from their undergraduate studies, are in demand and command high salaries. There is a growing need for professionals who can teach those undergraduates, but there is an even greater need for K–12 teachers who can introduce elementary and secondary students to statistics. Recently, we have called for a proliferation of graduate programs to train those statistics teachers and conduct research about teaching statistics.

In the mid-20th century, industry powered the United States, and the high-school curriculum was attuned to corporate needs. Students in the sciences studied the mathematics sequence through precalculus in high school. Their homework calculations were performed on a slide rule. (For those too young to remember a slide rule, it was a computing device that looked like a ruler and was based on logarithms.)

But there still is a major gap in the high-school and elementary-school curriculums. Big data and statistics increasingly drive executive decisions in business and nonprofits, yet most students do not encounter statistics until college. Most of the instructional content in elementary and secondary schools is mired in the curriculum of the 1950s. Even those who recognize this curriculum gap are at a loss to find educators who can teach statistics. In fact, some college students major in education in part to avoid math courses.

American school mathematics prior to 1800 consisted of the knowledge one needed for everyday life—essential arithmetic. In 1957, a major shift in mathematics education occurred with the Soviet Union launching *Sputnik*. The United States

was forced to examine how and what mathematics were being taught in the public schools. The 1960s launched a reform for a more rigorous school mathematics curriculum. Mathematics, 'new math,' was more about the study of mathematical structures through abstract concepts.

The Commission on Mathematics of the College Entrance Examination Board made the case for additional curriculum reform by including probability and statistics. Unfortunately, the results of a 1965 CEEB survey showed the absence of probability and statistics in the curriculum of most schools. Further, rigor of the new curriculum was not completely understood by the teachers or parents. As a result, the reform efforts of the 1960s were unsuccessful and dependency on basic drill and memorization practices, once again, became the norm in school mathematics.

Roughly 30 years later, school mathematics came under fire yet again. American students, regardless of grade level, generally underperformed in mathematics compared to their counterparts from other developed countries. A commission was formed by the National Council of Teachers of Mathematics and an agenda for action was created to standardize school mathematics curriculum to focus on problemsolving and teaching and learning for understanding. Further, it recognized with the advancement of technology, computational tasks should now be done by machines rather than by hand. NTCM emphasized the importance of familiarity with basic statistics for every citizen. This movement resulted in significant reforms across the country.

For example, in California, with current Common Core State Standards, appropriate components of probability and statistics are being introduced in earlier stages. Elementary students are required to graph and make inferences from data. Secondary students are required to perform more advanced analysis and testing. Nonetheless, there is a lack of implicit evidence showing the implementation of such standards in school classrooms. This may be in part due to the lack of teacher preparation in statistics because most of the top institutions in the country lack programs related to statistics education. In California, which supports the largest system of public universities, not one university has a program dedicated to statistics education with any focus on statistics literacy.

We call on the higher education community to respond to this need and create programs for training PhD educators who have an interest in developing ideas about statistics pedagogy and its manifestations in the K–12 curricula. The ASA's *Guidelines for Assessment and Instruction in Statistics Education* is a great starting point, as it recommends teaching statistical thinking, focusing on conceptual understanding, integrating real data with a context and purpose, and using technology to explore concepts and analyze data.

Personally, we have worked with single-subject teachers in middle and high school. But there also is a need for elementary teachers to have instruction about statistics and how to teach it. We believe communicating the concepts of variation, estimation, statistical modeling, and statistical prediction in the K–12 curriculum is pivotal to achieving quantitative literacy in our nation's school systems. Such a reformed curriculum would hopefully help with closing the gap in our students' appreciation of statistical thinking and decision-making under uncertainty. This can only be achieved if we train the next generation of academics with expertise in statistics education.

Editor's Note: A version of this article also appeared in the Journal of Humanistic Mathematics. ■

Share **YOUR** Views

Do you have an opinion you would like to share with colleagues? Send us a letter. Letters should be 600 or fewer words and must include your name.

Send your letter to the editor or any other news you would like to share to Megan Murphy at *megan@amstat.org*.

JSM IS ON ITS WAY TO DC

Check Out Conference Highlights and Start Planning

The statistical event of the summer—The Joint Statistical Meetings—is in Washington, DC, this year. Join us August 6–11 to meet new people, talk to old friends, and explore the nation's capital.

With a focus on the 2022 theme, Statistics: A Foundation for Innovation, the JSM program consists not only of invited, topic-contributed, and contributed technical sessions, but also poster presentations, roundtable discussions, professional development courses and workshops, award ceremonies, and countless other meetings and activities.

Here, we highlight our featured speakers, events and activities for students and early-career professionals, and top experiences you don't want to miss.

For JSM details, visit *ww2.amstat.org/meetings/jsm/2022*.

Meet the JSM 2022

FEATURED SPEAKERS

ASA President's Address

Katherine Ensor, *Rice University*

Celebrating Statistical Foundations Driving 21st-Century Innovation

Tuesday, August 9, 8:00 p.m.

Katherine Bennett Ensor is the Noah G. Harding Professor of Statistics at Rice University, where she serves as director of the Center for Computational Finance and Economic Systems and director of the Kinder Institute's Urban Data Platform. Ensor's research focuses on the development of statistical and data science methods for practical problems. Her expertise is on dependent data covering time, space, and dimension with applied interests in finance, energy, environment, health, and risk management. She is a fellow of the ASA and AAAS and has been recognized for her leadership, scholarship, and mentoring.

Deming Lecture

David L. Banks, *Duke University*

Deming and the Industries of Today

Tuesday, August 9, 4:00 p.m.

David Banks is Professor of the Practice of Statistics at Duke University. He earned an MS in applied mathematics from Virginia Tech in 1982, followed by a PhD in statistics in 1984. He then won a National Science Foundation postdoctoral research fellowship in the mathematical sciences, which he took at the University of California, Berkeley, working with David Blackwell. Banks is past president of the Classification Society and International Society for Business and Industrial Statistics. He is an ASA Fellow and Founder and has twice served on the ASA Board of Directors. He is also a fellow of the Institute of Mathematical Statistics and American Association for the Advancement of Science. His research areas include models for computational advertising, dynamic text networks, adversarial risk analysis, human rights statistics, agent-based models, forensics, and certain topics in high-dimensional data analysis.

Don't Miss the IMS Medallion Lectures

Medallion Lecture I

Dylan Small,
University of Pennsylvania

Protocols for Observational Studies: Methods and Open Problems

Tuesday, August 9, 8:30 a.m.

Medallion Lecture II

Huixia Judy Wang,
The George Washington University

Extreme Conditional Quantiles

Wednesday, August 10, 10:30 a.m.

SPAIG Lunchtime Speaker

Christopher Marcum, *White House Office of Science and Technology Policy*

A Framework for Scientific Integrity in Statistical Context

Sunday, August 7, 12:00 p.m.

Christopher Steven Marcum is the assistant director for open science and data policy in the White House Office of Science and Technology Policy. Before joining OSTP, he served as one of three National Institutes of Health representatives to the President's Scientific Integrity Fast Track Action Committee, where he cochaired the working group on training and transparency. He now cochairs the task force in his OSTP capacity. In addition to scientific integrity, his portfolio includes priorities that aim to make federal open science more accessible and equitable for all Americans. Marcum's professional accolades include more than 50 scientific publications, a commendation of exceptional service from OSTP, a Matilda White Rile Early Stage Investigator Honor from the Office of Behavioral and Social Science Research at the NIH, two GREAT Awards from the National Human Genome Research Institute, and an Order of Merit Award from the University of California-Irvine.

Section on Statistics in Sports Lunchtime Speaker

Katherine Evans, *Monumental Basketball*

A Review of Causal Inference in Sports

Monday, August 8, 12:00 p.m.

Katherine Evans is the vice president of research and information systems for Monumental Basketball, supporting areas of basketball operations for the Wizards, Mystics, Go-Go, and District Gaming. Her research focuses on the application of causal inference to sports statistics, as well as improving presentation and understandability of results. Previously, Evans served as the director of strategic research for the Toronto Raptors. She is an active advocate of increasing diversity in sports analytics, both in ideas and representation. Evans holds a PhD in biostatistics from Harvard University. In her free time, she enjoys trying to solve the traveling salesman problem on foot.

Economic Outlook Lunchtime Speaker

Susan Helper, *Case Western Reserve University*

What We Know and What We Wish We Knew

Tuesday, August 9, 12:00 p.m.

Susan Helper is the Carlton Professor of Economics at the Weatherhead School of Management at Case Western Reserve University. She is a research associate at the National Bureau of Economic Research and a nonresident senior fellow at the Brookings Institution. She was formerly chief economist at the US Department of Commerce and a member of the White House Staff. She holds a PhD in economics from Harvard University.

Health Policy Statistics Section Lunchtime Speaker

Elizabeth Stuart, *Johns Hopkins University*

The Need for and Challenges of Policy Evaluation During the COVID-19 Pandemic

Wednesday, August 10, 12:00 p.m.

Elizabeth A. Stuart is Bloomberg Professor of American Health in the department of mental health at the Johns Hopkins Bloomberg School of Public Health, with joint appointments in the department of biostatistics and the department of health policy and management. She earned her PhD in statistics in 2004 from Harvard University and is a fellow of the American Statistical Association and American Association for the Advancement of Science. Stuart has extensive experience in methods for estimating causal effects and dealing with the complications of missing data in experimental and nonexperimental studies, particularly as applied to mental health, public policy, and education. Her primary research interests include designs for estimating causal effects in nonexperimental settings, methods to assess and enhance the generalizability of randomized trials to target populations, and methods for policy evaluation. ■

Register for JSM and sign up for the lunchtime speaker sessions at *bit.ly/3Ejm8Ot*.

JSM Has Much in Store for Students

Are you an ASA student member who is thinking about attending the Joint Statistical Meetings? This year, we head to the nation's capital, where you will find many opportunities to learn, network with other statisticians and data scientists, and get more involved in the association. If you have any free time, there is also much to do and see in Washington, DC.

Here are several events and activities created just for students:

Learn About Student Chapters

Over the past few years, the ASA's student chapter program has grown to more than 70 student chapters throughout the country, which means JSM is the best time for everyone to meet. If you are a member of a student chapter, faculty adviser, or just interested in learning more about student chapters, attend the student chapters meeting for a chance to share ideas and plan for the future.

Networking Like a Pro: A Guided Networking Session

The ASA Committee on Career Development is hosting a social for students and early-career statisticians to practice networking in a friendly environment. 'Pro networkers' will discuss topics such as introducing yourself confidently, and then allow for practice time. During the practice sessions, students and early-career professionals will rotate to meet and practice with new people (volunteers from industry, government, and academia). Register for this event on the JSM website.

Meet Fellow Student Members from Around the World

Will this be your first time at JSM? Don't miss the Student Mixer Monday, August 8, from 6–8 p.m. Enjoy free food and drinks, enter a raffle, and mingle with other student attendees. And learn how to navigate the largest gathering of statisticians in the world.

Diversity Workshop and Mentoring Program

The Committee on Minorities in Statistics will host the 2022 JSM Diversity Workshop and Mentoring Program during JSM. This hallmark event brings together historically underrepresented minority (African/African American, Hispanic/Latino, and Native American) statisticians and data scientists at early- to mid-career levels (i.e., graduate, postdoctoral scholars, and working professionals) with senior-level statisticians and data scientists from academia, government, and the private sector. The program features one-on-one mentoring and professional development such as engaging small group discussions and networking. Interested students and professionals are encouraged to apply by May 31.

Get more information and the mentee application at *bit.ly/3uFn4cV* or contact Emily Butler at *emily.lynn.butler@gmail.com.* ■

Don't Miss the Chance to Volunteer and ...

Attend a Continuing Education Course for Free

JSM's CE courses give conference attendees the chance to learn from experts they might not otherwise meet in person. As a volunteer CE monitor, you can attend a course for free. CE monitors help courses run smoothly and, in turn, get to follow along with course content and meet the instructor and attendees. Interested? Pick a course you would like to attend and contact Rick Peterson, the ASA's professional development and chapters and sections manager, at *rick@amstat.org* by May 31.

Meet Presenters and Gain Experience Managing a Session

Session chairs introduce and support session presenters. These volunteers help keep sessions on topic and on time, plus they get to meet and work directly with session presenters. Session chair slots fill up, but don't give up if they are full—you can still volunteer as a backup. Learn more about what session chairs do and apply at *bit.ly/36gmEQZ.*

Get Involved with Student Chapters

With more than 70 student chapters spread throughout the country, JSM is the best time for everyone to meet. If you want to help out with setting up and moderating the meeting, contact Donna LaLonde at *donnal@amstat.org.*

Events, Networking Activities, and Places to Go During JSM

The Joint Statistical Meetings offers more than sessions. To round out your conference experience, there are opportunities to unwind and mingle informally, go sightseeing, network with employers, and advocate for the profession. Check out the following list and pick a couple of activities that appeal to you. JSM registration opens May 2.

JSM First-Time Attendee Orientation and Reception

Sunday, August 7, 12:30 p.m. – 2:00 p.m.

Join fellow first-timers at this orientation reception and learn how to get involved at JSM. Hear about the benefits of membership and get tips about the conference.

JSM Opening Mixer & Invited Poster Session

Sunday, August 7, 8:30 p.m. – 10:30 p.m.

All conference attendees are encouraged to come together for the kick-off social event of JSM.

JSM Student Mixer

Monday, August 8, 6:00 p.m. – 8:00 p.m.

The Student Mixer provides an opportunity for students to join their contemporaries for a fun-filled time.

JSM Dance Party

Tuesday, August 9, 9:30 p.m. – 12:00 a.m.

A fun highlight of JSM, the dance party is held right after the ASA President's Address and Awards. There are snacks, a cash bar, and a DJ!

JSM Spotlight

Where is the best place to grab refreshments or a treat and network with other attendees? Inside the JSM EXPO, of course! Take a break from sessions and enjoy special and unique refreshments while making new connections. For details, visit *bit.ly/3rs6tHu*.

JSM Data Art Show

This annual exhibition will take place as part of the JSM EXPO and feature original art made from data.

Questions related to the art exhibit can be sent to *art.show.jsm@gmail.com*. Submissions must be received by May 15. For details, visit *bit.ly/3KLWHYx*.

Career Service

Looking for a job? The JSM Career Service is a full-service interviewing facility for employers and career-seekers. Hundreds of recruiters and job candidates look to the JSM Career Service each year to connect and explore opportunities. Career Service candidate access includes the following:

- The Online Employer Search, including hundreds of job postings from top statistical employers
- The online Career Service Message Center, which allows you to contact

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employers of interest in advance, onsite, and even after JSM concludes

- The onsite JSM Career Service, where you can interview with employers who have contacted you and set up an interview

To participate, include Career Service when you register for JSM. Learn more at *bit.ly/3JL8TYj*.

Specialty Museums

In addition to the Smithsonian museums, there are specialty museums such as the Ford's Theatre Museum (*www.fords.org/visit/historic-site/museum*) and The George Washington University Museum (*https://museum.gwu.edu*). To find out what attractions are open, visit the Washington DC website at *bit.ly/3vnK3by*.

The National Gallery of Art's West Building is located on the National Mall.

Museums

Washington, DC, hosts the Smithsonian Institution, featuring the National Zoo and museums and galleries such as the National Museum of the American Indian and National Portrait Gallery. Smithsonian museums and galleries are free to enjoy. View each museum's website to make sure it is open and view the best times to visit and any COVID-related restrictions.

Monuments

Washington, DC, is famous for its monuments and memorials. Many are free to visit, including the United States Air Force Memorial and Martin Luther King Jr. Memorial. Tickets are required to go into the Washington Monument and are available at *www.recreation.gov*. Make sure to visit *bit.ly/3KOvwMw* ahead of time. ■

JSM Congressional Visits
Advocating for Data Literacy

To take advantage of JSM being in our nation's capital, the ASA science policy office invites ASA members to advocate for greater data literacy on Capitol Hill through in-person meetings with staff of their congressional representatives. The congressional visits are planned for Thursday, August 11.

Participants will be prepped earlier in the week about how to conduct successful meetings with Hill staffers and a data literacy bill currently in development. ASA staff will also provide leave-behind materials for the visits and instructions for requesting the meetings, with a goal of 4–5 meetings for each state's group.

Sign up by June 17 at *bit.ly/36YBI5I*. For more information, contact Steve Pierson at *pierson@amstat.org*.

MORE ONLINE
Check the JSM website at *ww2.amstat.org/meetings/jsm/2022/index.cfm* for updates and registration information. Late registration fees apply after July 1.

Whether you are looking for museums, tours, historic sites, or one of the hundreds of free things to do, the nation's capital has something for you.

Museums
www.si.edu/museums

Tours
www.washington.org/find-dc-listings/tours-sightseeing

Free Activities
www.washington.org/100-free-things-to-do

2022 COPSS Award Winners

The Committee of Presidents of Statistical Societies presents awards annually to honor statisticians who have made outstanding contributions to the profession. This year, the following Leadership Academy winners were selected in addition to the Distinguished Lecture Award and Elizabeth L. Scott Award winners. All awards will be presented at the Joint Statistical Meetings. For the latest news, follow COPSS on Twitter @COPSSNEWS.

Xi Chen

New York University
Associate Professor

For notable contributions to statistical inference for distributed, online, and high-dimensional data; to stochastic optimization; and to statistical applications in business domains; for outstanding educational efforts to the next generation of business leaders; and for significant industrial impacts.

Natalie Dean

Emory University
Assistant Professor

For ground-breaking, high-impact work in the development of innovative study designs and analyses for evaluating novel vaccines and for wide-reaching public engagement and thought leadership during the COVID-19 pandemic.

Davina Durgana

Oxford University and Walk Free

In recognition of outstanding service through pioneering scientific research and policy communication to end human trafficking and advocacy efforts to encourage youth and women in STEM fields across the world.

Philip Ernst

Rice University
Associate Professor

For significant contributions of extraordinary merit to applied probability and mathematical statistics, particularly the resolution of the longstanding conjecture of Yules' nonsense correlation; for outstanding teaching; and for leadership.

Kristian Lum

Twitter
Sr. Staff Machine Learning Researcher

For strong contributions to the study of algorithmic fairness and ethics in statistics and data science; for high-quality, high-impact collaboration and advocacy in social justice; and for leadership in maximizing our profession's openness and support of all members.

Betsy Ogburn

Johns Hopkins University Bloomberg School of Public Health
Associate Professor

For creative methodological innovations in causal and network analysis; for contributions to education; and for generous service to the profession and society, including leadership in addressing the COVID-19 pandemic. ■

Pierre Jacob

ESSEC Business School
Professor

For path-breaking contributions to Monte Carlo algorithms and Bayesian statistics and for exemplary dedication as teacher and mentor.

Lester Mackey

Microsoft Research
Principal Researcher

For significant contributions to the theory and practice of statistical machine learning.

DC

Elizabeth L. Scott Award Goes to Madhu Mazumdar

Rebecca Hubbard, University of Pennsylvania and Chair of the Award Committee, and Jaya M. Satagopan, Rutgers University

Madhu Mazumdar

The Committee of Presidents of Statistical Societies Elizabeth L. Scott Award committee recently honored Madhu Mazumdar of the Icahn School of Medicine at Mount Sinai with the 2022 award. Mazumdar was selected for serving as an outstanding role model of leadership and creating new leadership opportunities for statisticians, fostering opportunities in statistics and promoting statistical careers for diverse trainees, training and mentoring the next generation of statistical leaders, and excelling in team science research. The award will be presented at the 2022 Joint Statistical Meetings in Washington, DC, where Mazumdar will deliver the Scott Lecture, "Biostatistical Methods and Team Science: Generating Evidence for Optimization of Clinical Practice."

Mazumdar is professor of biostatistics at the Center of Biostatistics, Department of Population Health Science and Policy, and director of the Institute for Healthcare Delivery Science at Icahn School of Medicine at Mount Sinai. She was born and raised in India, where she earned her MA in statistics from the University of Delhi. She later earned an MS in mathematics from the University of Pittsburgh and a PhD in mathematical statistics from Penn State University. She also received training in leadership from Drexel University through the Executive Leadership in Academic Medicine Fellowship.

From 1991 to 2004, Mazumdar worked as assistant and associate attending biostatistician at Memorial Sloan Kettering Cancer Center, where she established a formal team of master's-level staff biostatisticians and served as the inaugural head of this team. In 2004, she moved to Weill-Cornell School of Medicine to establish the division of biostatistics and epidemiology within the department of public health. In 2014, she was recruited to the Mount Sinai Health System to develop and lead the Institute for Healthcare Delivery Science.

Mazumdar's research is inspired by statistical applications in health science. Three important application areas for her work include oncology, orthopedic surgery, and translational science. She has made substantial contributions to meta-analysis, predictive modeling, and clinical trials and published more than 320 peer-reviewed papers. She has also led the biostatistics cores of various extramural federal grants.

Mazumdar is a recipient of the Team Science Award, sponsored by the American Federation of Medical Research, Association for Clinical Research Training, Association for Patient Oriented Research, and Society for Clinical and Translational Science. She was elected a fellow of the ASA in 2013.

Throughout her career, Mazumdar has served as a devoted mentor to numerous early-career investigators in biostatistics, oncology, and other areas of the health sciences with a focus on helping early-career women. She has fostered opportunities in the statistics profession for a diverse group of more than 110 researchers. She was program chair of the ASA's Section on Statistics in Epidemiology, a member of the ASA's Development Committee, and currently serves as the ASA representative on the AMS-ASA-MAA-SIAM Joint Data Committee.

Mazumdar is deeply involved in multiple diversity initiatives and has made pivotal contributions to addressing salary equity issues by assisting her home institutions in conducting salary reviews, which have led to policy changes and strategies for recruiting women leaders. She has developed and reformed multiple biostatistics units. She collaborated with the biostatistical leadership of multiple clinical and translational sciences centers and developed a framework for evaluating team scientists and fostering an environment in which members of biostatistics units engaged in team science can thrive professionally.

Through all these activities, Mazumdar has served as a role model. Many of her mentees are now thriving as leaders in the statistics profession and emulating her by promoting the careers of the next generation of researchers.

At JSM, Mazumdar will speak about innovative statistical applications to catalyze health care delivery, addressing two specific challenges facing US health care: 1) how to choose patients for knee-replacement surgery who will benefit most in terms of their quality of life and the cost-effectiveness of the procedure and 2) how to improve quality of cancer care through modeling of incurred cost. Mazumdar will highlight the critical role of statistical methods in addressing these challenges and illustrate how collaboration guided with principles of team science provide opportunities for practicing leadership, embracing diversity, managing conflict, and sharing credit. ■

Nancy Reid to Deliver 2022 COPSS Distinguished Lecture

Rebecca W. Doerge, Carnegie Mellon University and Award Committee Chair;
Christian Genest, McGill University; and Erica E.M. Moodie, McGill University

The Committee of Presidents of Statistical Societies selected Nancy Reid, professor in the department of statistical sciences at the University of Toronto, to give the Distinguished Achievement Award Lecture at the 2022 Joint Statistical Meetings in Washington, DC. Her talk is titled "Likelihood and Its Discontents."

Reid's work has had a major impact on the development of statistical theory. She has made unique contributions to the linking of modern themes and traditional concepts in statistical science. As noted by Jon Wellner, who supported Reid's nomination, "She has contributed fundamental and path-breaking work in a wide range of statistical problems, including nonparametric estimation for survival data, applications of differential geometry to statistics, conditional inference, profile and composite likelihood methods, higher order asymptotics, connections between Bayes and frequentist methods, and … the list goes on." Her work is also wide-ranging, and she has shown an aptitude for focusing on problems with a high practical impact and reward. The clarity of her writing and her attention to detail have enhanced her lifetime interest in bringing statistical thinking to nonspecialists.

Reid studied at the University of Waterloo (BMath 1974), University of British Columbia (MSc 1976), Stanford University (PhD 1979), and Imperial College, London (PDF 1980). She joined the University of Toronto in 1986 from the University of British Columbia. She has held several leadership roles in statistical science, including editor or associate editor for several leading journals, department chair (1997–2002), president of the Institute of Mathematical Statistics (1996–1997), vice president of the International Statistical Institute (1999–2001), president of the Statistical Society of Canada (2004–2005), and director of the Canadian Statistical Sciences Institute (2015–2019).

Reid's early research on bivariate influence functions and functional expansions provided theoretical and practical tools for the analysis of censored data. Her 1987 paper with the late Sir David Cox on orthogonal parameters and approximate conditional inference, read to the Royal Statistical Society, has been influential. Her work has led to new approximation techniques and a deeper understanding of the foundations of statistical inference. The author of numerous books and papers, Reid maintains an active research profile focused in part on the investigation of the relationship between significance functions and Bayesian posterior distributions and generalized fiducial inference and inferential models.

Nancy Reid

Among her many awards, Reid was the first woman to receive the COPSS Presidents' Award (1992), the first recipient of the Canadian Mathematical Society's Krieger-Nelson Prize (1995), a Wald Lecturer in 2000, and the 2009 Gold Medalist of the Statistical Society of Canada. In 2016, the Royal Statistical Society awarded her the Guy Medal in Silver.

Reid is a fellow of the American Statistical Association, Institute of Mathematical Statistics, and American Association for the Advancement of Science. She is a corresponding fellow of the Royal Society of Edinburgh, a foreign associate of the US National Academy of Sciences, and an appointed officer of the Order of Canada. Her authoritative contributions to the theory of statistical inference, commitment to excellence in statistical applications, and outstanding service to the community make her an apt recipient of the COPSS Distinguished Achievement Award and Lectureship. ■

Obituary

Constance van Eeden

Submitted by Sorana Froda, Université du Québec à Montréal, and Jim Zidek, University of British Columbia

Constance van Eeden

On September 21, 2021, mathematical statistics lost an emblematic figure: Constance van Eeden, an ASA (and IMS) Fellow since 1972. Constance made an enormous contribution to statistical science as an educator and researcher through an active career that spanned more than half a century.

Beginnings. Constance was born in Delft, The Netherlands, on April 6, 1927. Her family spent the trying war years in Bergen op Zoom.

Constance earned her BS in 1949 from the University of Amsterdam and worked on her MS and PhD while employed by the Mathematical Center (now CWI) in Amsterdam. She earned her PhD cum laude in 1958 as one of the four PhD students of renowned mathematician David van Dantzig on a topic that stemmed from consulting work supervised by Jan Hemelrijk.

In 1960, Hermann Rubin invited Constance to Michigan State University, where she met her husband, the gifted statistician Charles Kraft. After a short stay at the University of Minnesota, Constance and Charles were invited to join the Université de Montréal faculty. Their arrival gave a big impetus to statistical science in Québec. Sadly, Charles passed away in 1985.

The educator. Constance was a great educator and an exemplary and quite unique adviser and mentor to 14 PhD and 19 MS students. She instilled in her students her professionalism and need for rigor in their research. During her 75th birthday fest in May 2002, numerous students referred to the generosity and patience of "Madame van Eeden."

The researcher. Constance's research career spanned more than 50 years. During that period, she published two books and more than 70 peer-reviewed papers, many of which were written with her principal collaborators, Charles and Jim Zidek. Her credo as a researcher was expressed in her 2010 interview in *Liaison*: "I don't think statistics could survive if we did not have the input of actual problems." Yet she was a passionate scholar, imaginative, curious, and in love with research for its own sake. For her, mathematics, like art, possessed an inner beauty, without regard to how it might be applied. Even writing it up for publication was for her a creative endeavor.

Constance's earliest research, in the 1950s, reveals her intellectual depth, mathematical skill, and originality. Always well ahead of her time, she in her PhD thesis proposed and initiated the development of a new subarea of statistical science, namely inference for restricted parameter spaces. (Dan Brunk proposed the subarea independently at

about the same time.) She recognized the importance of that restriction; procedures, which built on it, could outperform those that did not. That work culminated in 2006 with her publication of a Springer monograph on estimation in restricted-parameter space.

In another direction, Constance pioneered the development of nonparametric statistical inference in work cited in Hájek-Šidák's classic book on rank tests. Jointly with Charles, she published in that field other seminal papers in major journals such as the *Annals of (Mathematical) Statistics* and *JASA*; their innovative book on that topic appeared in 1968. On the strength of those contributions, Kraft and van Eeden became household names in the discipline. Moreover, as many of her students worked in nonparametric statistics, she is the founder of the Québec school of nonparametrics.

As for her contributions in other fields, we would mention her collaboration with Zidek throughout nearly three decades that stemmed initially from his work on group Bayesian theory. But, in a natural way, it evolved through other domains such as restricted parameter spaces, weighted likelihood estimation, combining sample information, and the characterization of stochastic uncertainty. Finally, in a new direction, it led to Bayesian subset selection.

All her collaborators appreciated her extremely high standards, keen sense of precision and originality, and love of the discipline. Most and foremost, she would never rush into publishing; drafts of her papers had to sit in a drawer for a while. Her passion for research was infectious. She inspired generations of students and research partners—perhaps the greatest of all her contributions to the creation of knowledge in statistical science.

Editorial work. Constance's sharpness as a reviewer was proverbial. That sharpness combined with her lofty standards led to associate editorships in the *Annals of Statistics* (1974–1977), *Canadian Journal of Statistics* (1980–1994), and *Annales des Sciences Mathématiques du Québec* (1986–1998). Perhaps her most significant editorial contributions stemmed from her editorship of the International Statistical Institute's abstracting journal (1994–2004), rewarded in 1999 with the Henri Willem Methorst Medal.

Retirement and honors. Constance chose to retire in 1988 and became Professeur Émérite at Université de Montréal. Besides, 1989 marked the beginning of her long-term multifaceted involvement with the University of British Columbia as honorary professor of statistics for more than 20 years.

Her extraordinary career was rewarded by numerous honors, the most salient being a Statistical Society of Canada Gold Medal (1990). In 2003, the Institute of Mathematical Statistics published a Festschrift volume in her honor. At the time of her passing, she was an honorary member of both the Canadian and Dutch statistical societies and an elected member of the ISI. The Université de Montréal established, in 1998, the Prix Constance van Eeden to be awarded to the best BS graduate in statistics.

The person. Constance always praised her students; her daughter, Kari; and her stepchildren. She viewed herself as a problemsolver; her favorite pastimes were crossword puzzles and knitting. Her personality is epitomized by the village of her retirement, Broek in Waterland, where lives move at a slower pace. The surrounding green pastures must have contributed much to her passion for life and her immense store of creative energy.

Both Constance the person and Constance the icon will be missed. ■

AERA Grants Program Seeks Proposals for Dissertation Grants

With support from the National Science Foundation, the American Educational Research Association Grants Program seeks proposals for dissertation grants.

The AERA Grants Program provides advanced graduate students with research funding and professional development and training. The program supports highly competitive dissertation research using rigorous quantitative methods to examine large-scale, education-related data. The aim of the program is to advance fundamental knowledge of relevance to STEM policy, foster significant science using education data, and build research capacity in education and learning.

The program is open to field-initiated research and welcomes proposals that do the following:

1. Develop or benefit from advanced statistical or innovative quantitative methods or measures
2. Analyze more than one large-scale national or international federally funded data set, analyze more than one statewide longitudinal data system, or incorporate other data enhancements
3. Integrate, link, or blend multiple large-scale data sources
4. Undertake replication research of major findings or major studies using large-scale, federally supported, or enhanced data

View the informational video at *bit.ly/36j77Qq* to learn more.

For eligibility requirements and to apply, visit *bit.ly/3vl0nd9*. The deadline is June 15. ■

USPROC Submission Open

The purpose of the Undergraduate Statistics Project Competition is to encourage the development of data analysis skills, enhance presentation skills, and recognize outstanding work by undergraduate statistics students.

The deadline for winter/spring courses and projects and year-long projects is June 24. Winners will be announced within 2–3 months.

The two categories for submissions are the following:

- **Undergraduate Statistics Research Project Competition** *www.causeweb.org/usproc/usresp*
- **Undergraduate Statistics Class Project Competition** *www.causeweb.org/usproc/usclap*

Cash prizes will be awarded in both categories. For details, visit *www.causeweb.org/usproc*. ■

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

AWARD	DEADLINE	QUESTIONS & NOMINATIONS
Links Lecture Award	July 1	*awards@amstat.org*
Health Policy Statistics Section Achievement Awards	September 15	*www.asahealthpolicy.org/for-students*
Lester R. Curtin Award	October 15	*awards@amstat.org*
Deming Lecturer Award	October 15	*awards@amstat.org*
Lingzi Lu Memorial Award	October 15	*awards@amstat.org*

Statistical Consulting

The Section on Statistical Consulting, in conjunction with the journal *Stat*, is soliciting articles for a special issue, titled "Statistical Consulting and Collaboration," with coeditors Robyn L. Ball, H. Dean Johnson, Lee-Ann Hayek, Xiaoyue Niu, Joseph Rigdon, and Hao Helen Zhang.

The goal of the special issue is to promote an exchange of ideas relevant to the practice by providing a written forum for consulting and collaborative statisticians to influence best practices in areas key to statistics. This collection will encompass the following two broad categories of research articles:

1. Innovative application of statistical techniques will focus on impactful and innovative statistical approaches, especially as they relate to challenges encountered with data or scientific questions that require a nuanced approach.
2. Collaborative skill development presents essential techniques and skills for collaborations, including case studies, strategies for effective communication, strategies for building successful collaborative relationships, and approaches to mentoring and/or training fellow statisticians and data scientists.

As these categories do not encompass the entire field of statistical practice, potential authors should reach out to the editorial team at *special_issue@stat.expert* with ideas for other topics relevant to the special issue. The editors welcome new submissions from practicing statisticians of original works on innovations in statistical collaboration and consulting.

For details, refer to the updated guidelines for the special issue at *bit.ly/3vnak9Y*.

Stat is known for its high-quality articles and rapid review process, with accepted papers published within 30 days of submission. To learn more, visit *bit.ly/37P23Uc*. ■

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If you wrote a sci-fi novel about statistics, what would it be titled?

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Mad Maximum Likelihood
Do Centroids Dream of Stochastic Sheep?
>> movie adaptation: Jackknife Runner

Eric Sivebk, MD • @Ericsivebk
Cox Regression: Apocalypse of the Covariates

Ryan McShane, Ph.D. • @math_mcshane
"This is How You Lose the Time Series War" I am sure I would not reach the same level of depth, beauty, and poetry @tithenai and @maxgladstone did, though. (Everyone go read their book)

-|kg Katori • @katoriglad
Beyond *p* Values: Life on the Fringe [Of Reason]

Irene Helenowski, Ph.D. • @OrderofTheDimen
The World at Bay(esian Inference)

Ashar Ata • @ataashar
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Adam Smith • @anhsmith
Greater Than Expectations
Or "> E[]" for short

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Caleb King • @ckingstats
REML: Rare and Extremely Malicious Lifeforms (cheesy sci-fi horror)

Frank Harrell • @f2harrell
The MetaAnalysisVerse

Jonathan Mosley • @JDMosley_Moses
Or, The MetaAnalysisVerse Strikes Back.

zamV16 • @zamv16
And don't forget the sequel published 2 decades later: The Rise of the MetaAnalysisVerse

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Lori Bougher
.051: The Replication

Libbie Stephenson
Lt. Commander Data: Bias and Inconsistency

Dan Gaichas
Confidence Level 95

Giusi Moffa
Title: "Belief and Bias"
Incipit: "It is a truth universally acknowledged, that a single "relationship" in possession of a good "correlation," must be in want of a "cause.""

Ramona Lee Paetzold
I only write mysteries. "The Case of the Missing Mediator."

Raymond N. Greenwell
2001: A Spacious Sample Size
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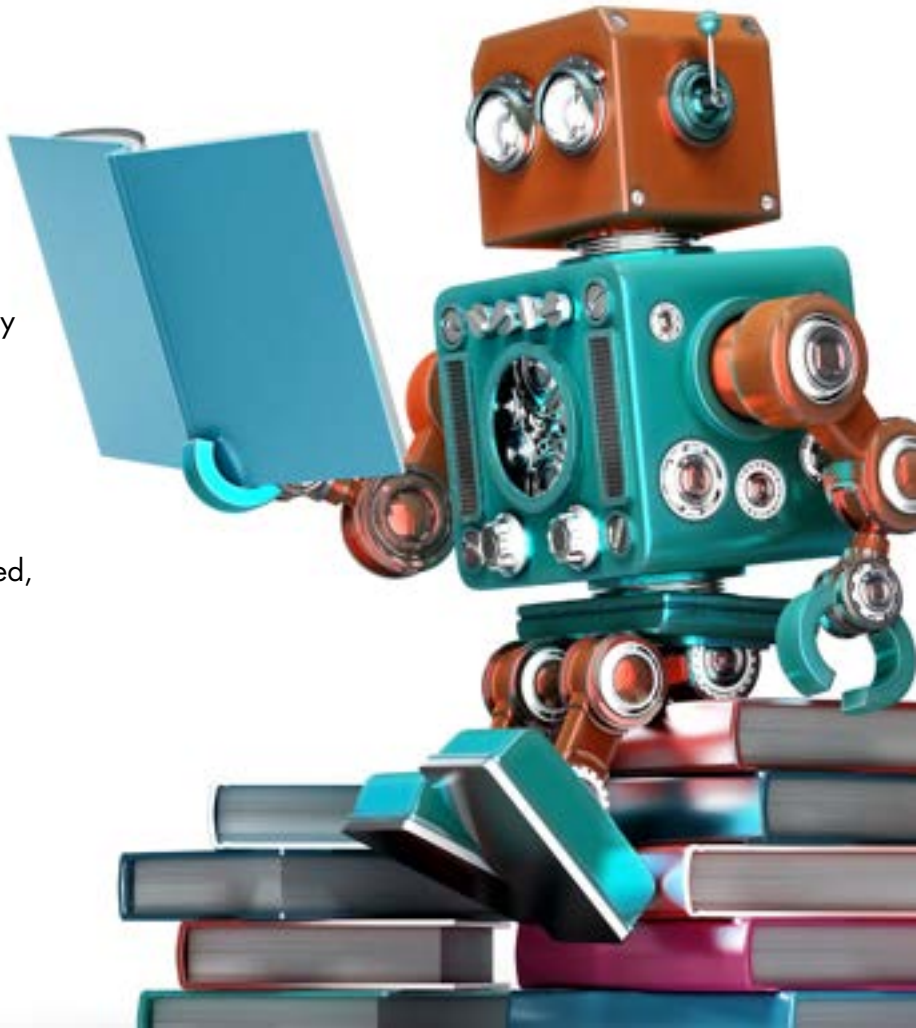
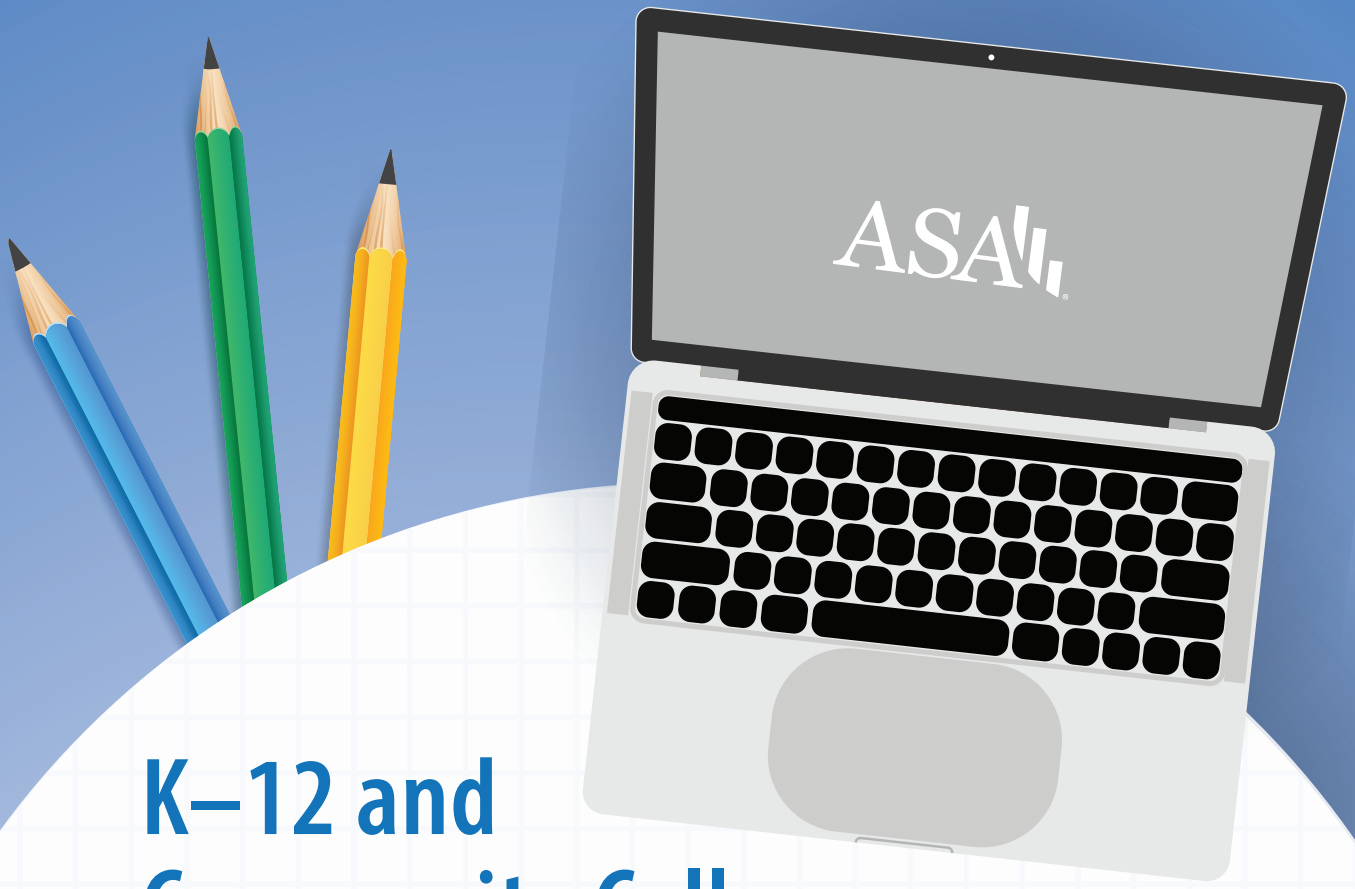
Next month:

If you could name your pet using a statistical method or term, what would it be?





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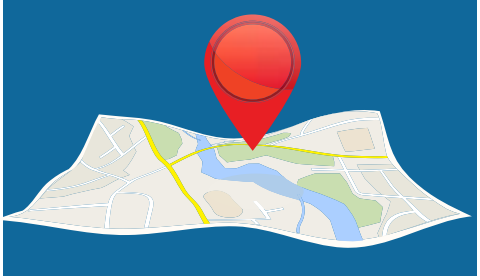

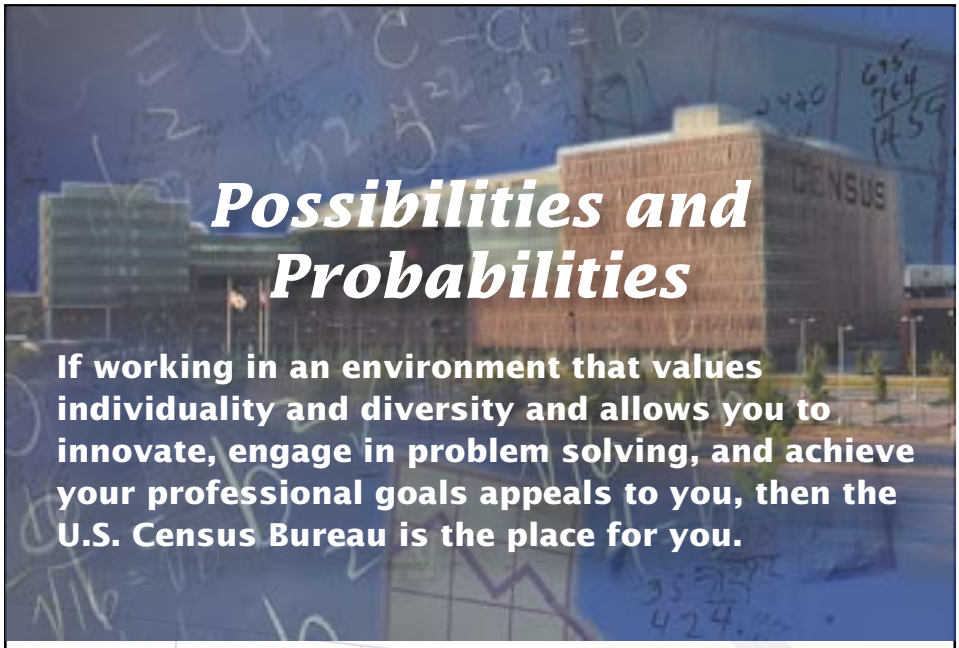

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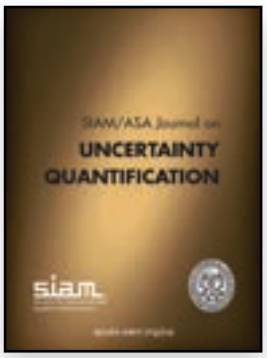

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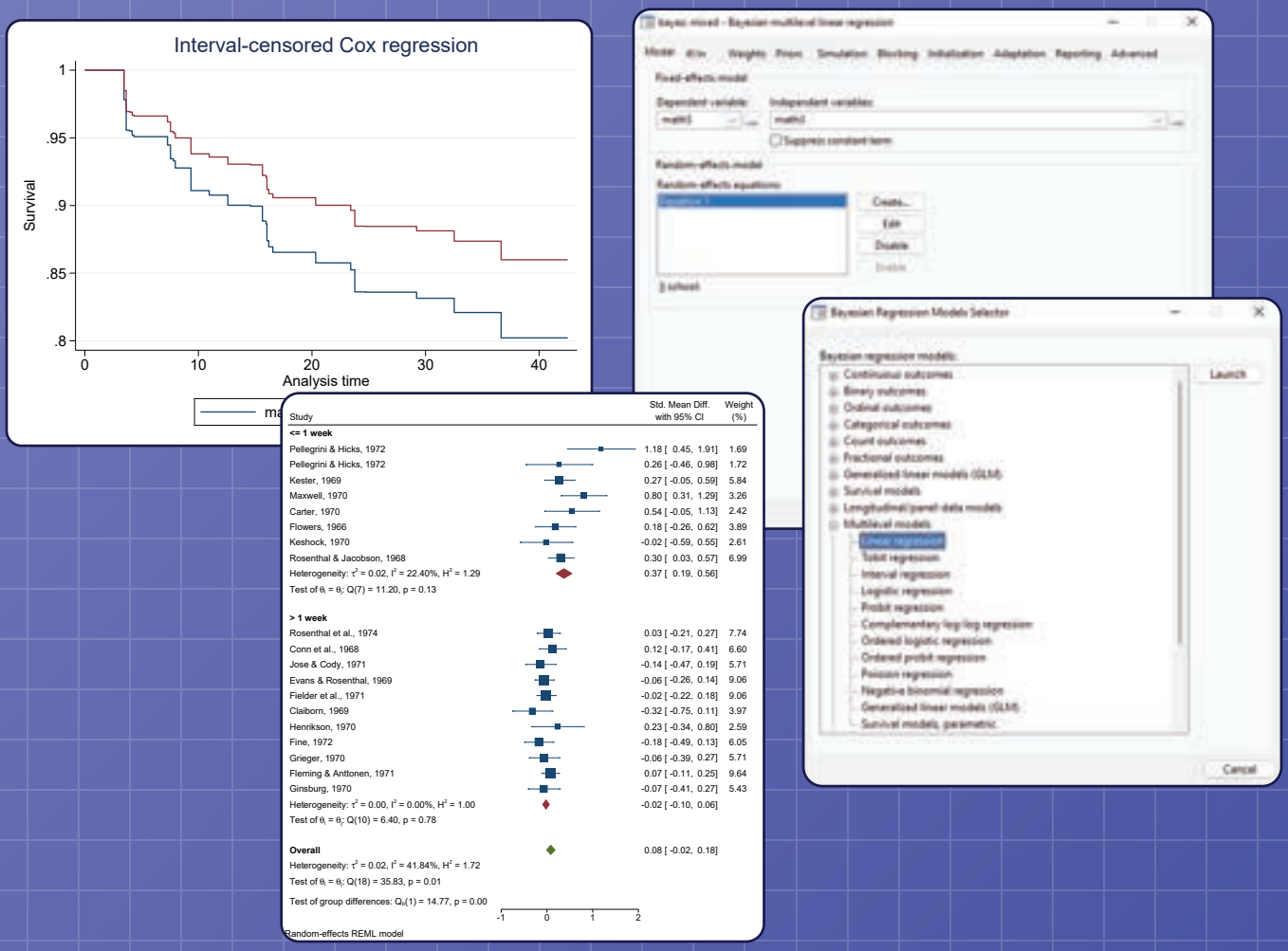

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