

December 2024 • Issue #570

AMSTATNEWS

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

Fourth ASA Survey of **Bachelor's Graduates**

Tracks Rapidly
Evolving **Job Market**

ALSO:

Pawel Nazarewicz: AP Statistics
Teacher Extraordinaire

New Member Spotlight:
Christianah Jemiyo





Statistics, Data Science, and AI Enriching Society

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January 23 – April 4, 2025
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February 1 – April 15, 2025
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May 31, 2025
Draft Manuscript Deadline



August 2-7

2025 JOINT STATISTICAL MEETINGS

Nashville, Tennessee

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AMSTATNEWS

DECEMBER 2024 • ISSUE #570

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

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Data for Good: The Year in Review and 2024 Challenge Winners

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.

ASA DataFest Hosts Wanted

To be an ASA DataFest host, organizers must agree to use the official data set, abide by a few ground rules, and hold the event sometime between March 21, 2025, and May 4, 2025. Register your institution's intent to host a local ASA DataFest event by February 7, 2025. For more information, join a virtual town hall January 14, 2025, at 2 p.m. ET. Register for the town hall at <https://bit.ly/3NHcZEX>. Visit the DataFest website for details: ww2.amstat.org/education/datafest/hosting.cfm.

Data Viz and Project Competitions to Take Place in Spring

Introduce K–12 students to statistics through the annual ASA Data Visualization Poster Competition and Project Competition directed by the ASA/NCTM Joint Committee on Curriculum in Statistics and Probability. The competitions offer opportunities for students to formulate questions and collect, analyze, and draw conclusions from data. Winners will be recognized in *Amstat News* and receive plaques, cash prizes, certificates, and calculators. Posters for grades K–12 students are due every year on April 1. Projects for grades 7–12 students are due on June 1. bit.ly/34VmGNg

Application Open for 2025–2026 Society for Research in Child Development US Policy Fellowship Program

Postdoctoral experts in child development are immersed in policy for one to two years in Congress or a state or federal agency. They receive a stipend and professional development support. Applications are due January 6, 2025, at 11:59 p.m. ET. Apply via the website at <https://tinyurl.com/56vavd6f>.

Amstat News Has New Publishing Schedule

Reminder! Starting next month, we will print *Amstat News* eight times per year but continue to publish it online every month.

The deadline to send in your news items will remain the same. Submit your article by the first of the preceding month you would like your piece published to ensure its appearance in the correct issue (e.g., June 1 for the July issue). For details about how to submit an article, view our submission instructions at <https://magazine.amstat.org/about/submission-instructions>.

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Building the Future of Statistics: Community, Mentorship, and AI

It has been an honor to serve as president of the American Statistical Association in 2024 and a privilege to have this forum to share with you my updates and vision for our association and profession. Some of you have taken the time to share your thoughts about these columns, which I've greatly appreciated. Next month, the ASA enters its 186th year with a new ASA president. In my last column of the year, I will reflect on highlights of the past year, challenges ahead, and—most importantly—my experiences with you, our ASA community.

Opportunity has played an enormous role in my career. When I spoke to ASA members, I heard the need for more mentoring opportunities within our association. To incorporate diverse perspectives, I formed a working group. Thank you to Ruth Etzioni, Carolyn Rutter, Prince Allotey, Maria DeYoreo, Frost Hubbard, and Madhu Mazumdar. All have been so generous with their time.

In the spring, the working group developed a survey for members and section, committee, and chapter officers to understand both member needs and the landscape of ASA mentoring. The findings suggest many ASA groups already

provide valuable mentoring (e.g., webinars, 1-1 mentoring). The fresh idea is to launch ASA communities of practice. Models involving peer-to-peer mentoring should be both scalable and sustainable. We are working out implementation with primary considerations being conversation interface (e.g., Slack, Discord) and necessary resources (e.g., staffing, maintenance). Many of you have provided names to be added to a new mentoring platform. Please look for an update in spring 2025.

As you may know, I am passionate about the role of statisticians in interdisciplinary collaborations. I also think we need to do more to elevate our contributions. Building upon recent initiatives, I chose to focus on the critical role of statistical scientists in data science and artificial intelligence. My JSM invited speaker Jason Matheny's talk, titled "Working at the Intersection of Statistics and AI Policy" was a powerful reminder to statistical practitioners of the resilience and determination that drive our work.

Thank you to Lingzhou Xue (Penn State) and Donna LaLonde (ASA), who helped me organize the third IDEA Forum in November. The topic was

trustworthy AI, with multiple perspectives and developments in trustworthy AI, bias, and human-user interactions with AI systems. The moderated Q&A explored the role of statistics in ensuring data privacy and fairness, bridging the gap between AI's technical complexity and the public's trust in its outcomes, and communicating outcomes transparently. In partnership with the National Institute of Statistical Sciences, we are planning additional AI-related webinars for next spring, including the following:

- Demystifying AI
- AI Considerations for Statistical Research
- AI Considerations for Education
- Effect of AI Across Sectors

I would like to acknowledge the generous advice and consulting I received from Mark Glickman, Weijie Su, and James Rosenberger.

In modern society, technology can help us connect more frequently to build and strengthen community. While in-person meetings can enhance connections, they are not accessible to all. LaLonde, Ron Wasserstein, and I hosted a virtual meet-up for new ASA members in October;



Madhumita (Bonnie) Ghosh-Dastidar

Remember, we can all contribute to increasing visibility and communicating the impact of our work and profession in ways a nonstatistician can appreciate.

some on the call came from statistics-adjacent fields. Many expressed a desire to connect with others within the ASA. The plan is to host additional meet-ups for ASA sections and interest groups so new (or current) members can find their ‘community.’

The highlight of the year was the 2024 Joint Statistical Meetings in the beautiful Pacific Northwest. The superb program committee, led by Debashis Ghosh, organized a terrific technical program, which received rave reviews.

JSM is more than just an event to many of us—it is an opportunity to celebrate shared passions; shape the future of our field; and network, learn, and grow! The on-stage celebration of the new fellows and award recipients was joyous and recognized the leadership and impact of our colleagues. Additionally, I had the unique privilege of addressing ASA councils and committees, sharing my vision for the ASA.

At JSM and throughout this year, I have learned about your initiatives and marveled at the collective strength of dedicated volunteers. Thank you for all

you are doing to move our community forward. I also want to thank the small and mighty ASA staff that is the backbone of all activities and ASA offerings (e.g., meetings, publications, and even a podcast).

Looking ahead to 2025, I am excited for the initiatives under our new ASA president, Ji-Hyun Lee, and the new ASA initiatives to increase outreach and communicate impact. Scheduled for April 22, 2025, the Dionne Price Public Lecture will showcase the work of early-career investigator Claire Bowen. Also, the second Telling Our Stories video is underway. And there is so much more in the works. Remember, we can all contribute to increasing visibility and communicating the impact of our work and profession in ways a nonstatistician can appreciate.

I end this column with grateful thanks to the many people who have left me with a lifetime of memories from 2024. It would be hard to overstate the impact statistics has had on me, both personally and professionally, especially this year. ASA staff; the board of directors; our hardworking committee,

chapter, and section officers; and our members from all over the world have been ever so collegial, informative, and gracious. The ASA would not exist without you, our members, and its staff to help us move in directions not foreseen by our predecessors. The research you have published, the projects you have conducted, and the communications you have shared have taught me much and so inspired me in my life. This experience has reinforced my belief in the power of community and collaboration and reminded me we can drive positive change and have impact through the power of statistics!

Thank you for welcoming me as your president this year, and may you continue to enrich the lives of others as you have enriched mine.

M. Ghosh Dastidar

ASA Journals, CHANCE Magazine Need Editors

Eric Sampson, ASA Journals Manager

Journals are vital to the ASA's mission of promoting the practice and profession of statistics, and editors are at the heart of ensuring our publications continue to be world leaders in statistics research and applications.

If you or someone you know would be a great fit for one of the following editorships, send your nomination by January 24, 2025, and application by February 21, 2025, to Journals Manager Eric Sampson at eric@amstat.org.

Co-Editors, *Journal of the American Statistical Association*, Theory and Methods

Term: 2027–2029, with a full year of transition beginning in 2026

JASA has long been considered the premier journal of statistical science. The Theory and Methods section publishes articles that make original contributions to the foundations, theoretical development, or methodology of statistics and probability. All submissions are rigorously refereed using a double-blind peer-review process.

For more information about *JASA*, see the aims and scope at <https://bit.ly/40FSFM0>.

View the call for applications at <https://bit.ly/3O2dpG7>.

Editor, *Journal of the American Statistical Association/The American Statistician*, Reviews

Term: 2026–2028, with transition beginning in 2025

The Reviews section in *JASA* publishes all review-type articles and reviews of recently published books relevant to the *JASA* audience. The Reviews section in *TAS* publishes reviews of materials related to teaching statistics. This includes textbooks; special volumes and proceedings concerning statistical education; and software, videos, organized sources of data, and internet resources intended for statistical education.

For more information about *JASA*, see the aims and scope at <https://bit.ly/3YMZwk6>. View the call for applications at <https://bit.ly/3Z2mgOG>.

Editor, *Statistics in Biopharmaceutical Research*

Term: 2026–2028, with transition beginning July-September 2025

SBR publishes articles that focus on the needs of researchers and applied statisticians in biopharmaceutical industries; academic biostatisticians from schools of medicine, veterinary medicine, public health, and pharmacy; statisticians and quantitative analysts working in regulatory agencies (e.g., US Food and Drug Administration and its counterpart in other countries); statisticians with an interest in adopting methodology presented in this journal to their own fields; and nonstatisticians with an interest in applying statistical methods to biopharmaceutical problems.

For more information about *SBR*, see the aims and scope at <https://bit.ly/3O3PzKf>. View the call for applications at <https://bit.ly/3CzVVOQ>.

Editor, *CHANCE Magazine*

Term: 2026–2028, with transition beginning July-September 2025

CHANCE is a unique magazine intended for everyone interested in the analysis of data. Articles showcase statistical methods in the social, biological, physical, and medical sciences and highlight ideas about statistical computing and graphical presentations of data. Regular departments and columns keep readers informed in such areas as government statistics and sports. *CHANCE* entertains, informs, and encourages sound statistical practice.

For more information about *CHANCE*, see the aims and scope at <https://bit.ly/40EgZhr>. View the call for applications at <https://bit.ly/40HaMRS>.

Editor, *Journal of Nonparametric Statistics*

Term: 2026–2028, with the transition beginning July-September 2025

JNPS provides a medium for the publication of research and survey work in nonparametric statistics and related areas. Both the theory and applications of nonparametric statistics are covered. Research applying nonparametric methods to medicine, engineering, technology, science, and humanities is welcome, provided the novelty and quality level are of the highest order.

For more information about *JNPS*'s aims and scope, see <https://www.tandfonline.com/journals/gnst20/about-this-journal>.

View the call for applications at <https://bit.ly/3Zfw8ED>. ■

ASA Members!

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MY ASA STORY

Donna Lalonde, ASA Associate Executive Director



LaLonde

My ASA story is centered on community. Early on, the sense of community enriched my teaching because there were so many amazing educational resources. When I used the lesson plans made available through STatistics Education Web (STEW) in my course for undergraduates who were preparing to teach both elementary and middle school, I felt part of a network of colleagues. In 2015, I joined the ASA staff and found friendships, professional growth, and an opportunity to connect with others who shared my passions.

One of my first experiences as a member of the ASA staff was a lunch with then ASA President David Morganstein. Although my colleagues had been welcoming, I was anxious about being the “newbie”—a feeling that was both disconcerting and unfamiliar since I had been at my previous institutions for 24 years. During that lunch, David shared his presidential focus on mentoring. He talked with such passion about his goals to support members of the ASA, regardless of their career stage, which made me both less anxious and excited for the opportunity to be part of something bigger. David’s commitment to mentoring helped make the ASA Mentoring Award a reality. I’m grateful to David for making mentoring a part of my ASA story.

Recently, podcasting has become part of my ASA story. As an avid podcast listener, it was a real thrill to join the ranks of those hosting a podcast. More importantly, it is wonderful to have another project that allows a collaboration with Ron Wasserstein. Ron is a big part of my story.

But *Practical Significance* was not my first ASA connection to podcasting. Because of former ASA President Barry Nussbaum’s focus on the importance of communication and outreach, I’m fortunate to have had the opportunity to collaborate with John Bailer and his talented Miami University journalism colleagues on *Stats+Stories*. I’m looking forward to continuing to grow both podcasts!

Of course, data—or, more specifically, data challenges—are part of my ASA story. Each spring, there are 30+ ASA DataFest events. I’m grateful to be able to help Rob Gould, Mine Çetinkaya-Rundel, and so many other amazing volunteers. They inspired me to create the Fall Data Challenge, which is successful in large part because Wendy Martinez loves data challenges as much as I do. Working with Wendy on the Fall Data Challenge, JSM Data Expo Challenge, and whatever other challenges we dream up is a big part of my story. If you are asked to be involved in an ASA challenge or competition, say yes—you won’t regret it!

I know conferences play a significant role for many when it comes to their ASA stories. For me, the role played by conferences in my ASA story is shaped by my role as a member of the ASA staff. Conferences are essential for learning about new research and best practices and for building new collaborations. For my ASA story, conferences are the opportunity to appreciate the talent and commitment of my staff colleagues. Describing this as a team effort isn’t just a phrase, it reflects the reality that everyone contributes. I’m grateful my ASA story includes the opportunity to experience ASA conferences from this vantage point.

I conclude this part of my ASA story where it began, by recognizing the role of community. I am grateful my ASA story affords me the opportunity to connect with colleagues who share my interests and commitment. These colleagues support my personal and professional journeys and help make the unexpected a reality. As I continue my ASA story, I am excited to build, learn, and give back alongside such an inspiring group of colleagues. ■

Calvin Zippin: A Lifetime Membership Leads to a Lifetime of Contributions

Megan Murphy, ASA Communications Manager



Zippin, 2024

In 1947, when Harry S. Truman was president of the United States, Calvin Zippin joined the American Statistical Association at the age of 21, beginning what would become the longest continuous membership in the organization. At the time, he was working at Sterling Winthrop Research Institute under the mentorship of Lloyd Miller, who encouraged Zippin to pursue a career in statistics. This marked the beginning of a distinguished career that included statistics, epidemiology, and cancer research.

Zippin was mentored by renowned statistician William Cochran while pursuing his graduate degree at Johns Hopkins University. His doctoral thesis would eventually lead to the development of the Zippin Estimator, which estimates animal populations by using a method called “removal sampling.”

Following his graduate studies, Zippin embarked on an academic career, initially joining the faculty of the University of California, Berkeley, as a biostatistics instructor. He left in 1967 and became a professor of epidemiology (biostatistics) at the University of California, San Francisco School of Medicine, where he worked until he retired in 1991.

Zippin met and spoke with numerous statisticians throughout his professional life, including the legendary Sir R.A. Fisher, whom he encountered in 1952 while at a conference in North Carolina. Fisher’s influence, along with that of Cochran, helped shape Zippin’s approach to applied statistics.

An influential figure in cancer research, Zippin led the cancer registry program at the University



R.A. Fisher (left) and Zippin, 1952

of California, San Francisco for 33 years, working closely with the National Cancer Institute on various projects, including the Third National Cancer Survey. His staff also played a key role in training personnel for cancer data collection activities. His work contributed to the National Cancer Institute’s SEER (Surveillance, Epidemiology, and End Results) Program, focusing on quality control and pilot studies. “I am proud of having been involved in clinical trials early and the success that was achieved in the reduction of cancer mortality among children,” Zippin wrote.

Zippin’s work with cancer staging led to two of his publications being included in the *Yearbook of Cancer*—which highlights the

most significant cancer research of the year—in 1961 and 1967. His work also involved international collaborations. In the 1970s, Zippin participated in a joint US-Soviet study of breast cancer, although the project was cut short following the Soviet invasion of Afghanistan. Additionally, his work took him to Hiroshima to study the late effects of radiation at the Atom Bomb Casualty Commission in 1966, and he conducted cancer registry training workshops in India from 1984 to 1991.

In recognition of his lifelong contributions, Zippin received the Lifetime Achievement and Leadership Award from the National Cancer Institute in 2003.

Zippin’s career was not without challenges. One of his most difficult experiences occurred in 1978, during Argentina’s ‘dirty war.’ While attending an International Cancer Congress in Buenos Aires, he was asked by the American Association for the Advancement of Science to interview the mothers of victims who had been kidnapped by the regime. He later joined these mothers in their weekly protest march around the Plaza de Mayo, an act of solidarity that remains deeply significant to him.

Zippin has remained engaged in the professional community. He is a fellow of the ASA, the American College of Epidemiology, and the Royal Statistical Society, as well as past president of the Western North American Region of the International Biometric Society. His legacy in cancer research is a testament to his dedication to and passion for the statistics profession. “There is nothing I would choose to do differently,” Zippin said. “I have drawn inspiration from the wondrous people I have met along the way on this long journey.” ■

Third International Day of Women Draws Diverse Crowd

Dong-Yun Kim and Jessica Kohlschmidt



The International Day of Women in Statistics and Data Science marked its third annual celebration October 8 with a 24-hour virtual conference, uniting a global audience under the theme “Empowering the Next Generation of Women Statisticians and Data Scientists.” Organized by the Caucus for Women in Statistics and Data Science in collaboration with the American Statistical Association and Portuguese Statistical Society, the event offered access to a network of female professionals, leaders, and aspiring statisticians and data scientists worldwide.

The celebration—made up of 180 speakers from 26 countries—attracted more than 600 participants from 77 countries, reflecting the worldwide interest in celebrating and advancing the contributions of women in these fields.

Bridging Continents: By the Numbers

The United States led with 43% representation, followed by the United Kingdom at 9% and South Korea at 7%. Twenty-seven of the speakers (15%) were students, including three high school students and one undergraduate. Eighty percent of the speakers were affiliated with academia, 7%

were affiliated with government institutions, and 13% were affiliated with industry. Participants came from Africa (3%), the Americas (47%), Asia (5%), Europe (31%), and Oceania (4%), while 10% came from other places. Additionally, 16 of the 60 sessions (27%) featured speakers from multiple countries.

Highlights: Keynotes, Sessions, and Leaders

This year’s event featured an array of plenary and technical sessions, with themes spanning the latest developments in statistics and data science to professional insights to historical reflections to strategies for career advancement. The conference opened with a session led by Dong-Yun Kim, International Day of Women in Statistics and Data Science co-chair, who welcomed participants from around the world. The opening session included remarks from the Caucus for Women in Statistics and Data Science President Cynthia Bland, ASA President-Elect Ji-Hyun Lee, and Portuguese Statistical Society Vice President Lisete Sousa. They highlighted the event’s global support and the essential collaboration between statistical societies committed to diversity and inclusion.

The four keynotes covered the following topics:

- **Kerrie Mengersen** of Queensland University of Technology gave an overview of Bayesian approaches to address substantive environmental, health, and societal challenges.
- **Nancy Geller** of the National Institutes of Health and recipient of the 2024 Jeanne E. Griffith Mentoring Award shared her approach to leadership, highlighting respect, open communication, and a supportive work environment as essential to scientific success.



Kerrie Mengersen



Nancy Geller



Ruth Keogh



Leslie McClure

- **Ruth Keogh** of the London School of Hygiene and Tropical Medicine showcased statistical methods used in health research, where common aims are to predict the risk of an adverse outcome or estimate the causal effect of a medical intervention, and discussed what prediction can do for causal inference and vice versa.
- **Leslie McClure** of Saint Louis University explored actionable strategies to foster the growth of young women in statistics and data science, drawing from her personal experiences and providing leadership insights.

The broad selection of contributed sessions highlighted how influential women throughout the world are advancing statistical science across diverse applications and global research fronts.

In the spirit of the conference theme, students at all levels were encouraged to participate, and the program included a high school student research session. Three students presented projects about confidence intervals in clinical studies, AI ethics in health care, and machine learning in space science.

Survey Insights: Impact and Reception

Feedback from 45 attendees (84% female, 16% male) consisting of 62% statisticians, 16% students, and 11% data scientists and other categories highlighted several strengths of the conference.

Eighty-four percent rated the conference as either “excellent” or “very good.” Attendees rated their likelihood of recommending the event to colleagues with a mean score of 8.5 (SD = 2.0) on a scale from 0 (very unlikely) to 10 (very likely).

Attendees highlighted several key themes, particularly regarding the diversity of speakers and research topics. They also praised the professionalism of the

IDWSDS 2024 Committee Members

Cynthia Bland

Ligia Henriques-Rodrigues

Shili Lin

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Sarah Lotspeich

Vanda Lourenco

Umut Ozbek

Hunna Watson

speakers, citing their knowledge and the practical applications of statistics and data science in real-world contexts.

The event was praised for its organization, and the 24-hour online format was appreciated for its flexibility.

Beyond the Numbers: Building a Stronger Community in Statistics and Data Science

Beyond the technical discussions, the International Day of Women in Statistics and Data Science brought forward conversations about the need for continued efforts in promoting diversity and inclusion. Despite progress, women remain under-represented in statistics and data science, making initiatives like the International Day of Women in Statistics and Data Science crucial for fostering support and mentorship within the field.

For those unable to attend, recordings of the sessions will soon be available on the Caucus for Women in Statistics and Data Science YouTube channel at <https://youtube.com/@cwstat9787>. ■



TIME SERIES

This Month in Statistics History

Penny S. Reynolds, University of Florida College of Medicine

1815 Ada King, Countess of Lovelace, was born. Known for her work on Charles Babbage's 'analytical engine' and her published algorithm ('Note G'), which was used for calculating a sequence of Bernoulli numbers with loops and branching and recognized as the first computer program. Far ahead of her time, she also predicted such programs would be able to output symbols and numbers and even compose elaborate pieces of music.

1877 Edward C. D. Molina was born. ASA Fellow 1945. A pioneer of statistical engineering, he championed application of advanced probability methods to telecommunication research and development.

1891 Helen Walker was born. In 1944, she became the first female ASA president. She was also an ASA Fellow best known for research in education and the history of statistics.



Walker

1895 Lancelot Hogben was born. Medical statistician and inventor of the N-of-1 clinical trial, he is better known for his arguments against the tyranny of averages, forceful attacks on the eugenics movement, and warnings about the dangers of poor statistical inference.

1897 Arthur L. Bowley introduced the concept of bias as differences in estimate errors due to bias, conscious or unconscious, on the part of the investigator.

1899 G. Udny Yule introduced a method for determining association of attributes for studying the relationship of two categorical variables. He described a variety of applications, including Darwin's plant fertilization data, temper in fraternities, inheritance of artistic faculty, and low nutrition and dullness associated with age and sex.

1915 Lila Elveback was born. ASA Fellow 1970. One of the founding directors of the American College of Epidemiology, she is best known for significant contributions to medical statistics and the promotion of high-quality statistical research at the Mayo Clinic.

1917 Thomas C. Chalmers was born. Founder of the Mt. Sinai Department of Biostatistics, he was a pioneer in the application of randomized controlled trials and meta-analysis for evaluation of medical therapeutics.

1921 Geoff Watson was born. Best known as codeveloper with James Durbin of their eponymous statistic for detecting autocorrelation in least squares regression. Watson became an ASA Fellow in 1966.

1922 Edward H. Simpson was born. Best known for Simpson's paradox (developed when a graduate student at Cambridge) and Simpson's diversity index. He was a Bletchley Park codebreaker during World War II.

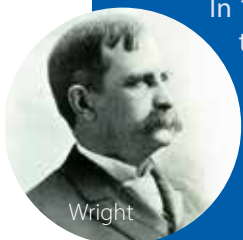
Martin B. Wilk was born in Canada. ASA Fellow 1962. From 1980–1985, he was chief statistician of Canada and is best known for developing the Shapiro-Wilk test with Samuel Shapiro and Q-Q and P-P plots for graphical comparison of probability distributions with Ramanathan Gnanadesikan.

Did You Know?

At its founding in 1839, the American Statistical Association was called the American Statistical Society. However, it soon dawned on the founding members that the acronym would lead to unfortunate connotations. The name was officially changed in 1840.

Between 1836 and 1851, other statistical societies formed in the United States but only the ASA remains. Despite having little funding and only a handful of members, the ASA managed to hold on through its first 50 years. Edward Jarvis, the third ASA president who served for more than three decades, was instrumental in keeping the society alive, often shouldering much of the effort himself.

In 1908, Carroll D. Wright, the ASA's fifth president (1897–1909), broke tradition by holding the annual meeting in Atlantic City, New Jersey—the first outside Washington, DC, or Boston, Massachusetts—and introduced the yearly ASA President's Address.



Wright



1923 Janet L. Norwood was born. ASA president 1989. She is best known for being the first female commissioner at the Bureau of Labor Statistics and improving the quality of bureau statistical indicators. The *New York Times* wrote Norwood once observed, “You can’t have a democratic society without having a good data base.”

William S. Gosset (under the pseudonym Student) published the first modern-looking ANOVA table. It was a footnote in a 22-page paper on development of statistical tests for determining the most cost-effective grain varieties. He credits R. A. Fisher for correcting mistakes in the original formulation.

1946 Churchill Eisenhart (ASA Fellow 1943, ASA president 1971) presents a paper to the ASA describing the assumptions underlying ANOVA when used for statistical inference: random variables, additivity, homoscedasticity, and normality. He distinguishes Model I from Model II ANOVA based on differences in the expected variance components, all illustrated with (hand-written) ANOVA tables.

1964 Maurice Bartlett gives the first R. A. Fisher Memorial Lecture at a joint session of the ASA, Institute of Mathematical Statistics, and Biometrics Society. In June of 2020, the award was renamed the COPSS Distinguished Achievement Award and Lectureship. ■

SIGNIFICANCE HIGHLIGHTS

Statisticians Save Day in November Issue of *Significance*

Statisticians ‘save the day’ in two articles this issue, showing us statisticians can be game-changing if they are given a seat at the table.

Brazilian statistician Dani Gamerman joined an interdisciplinary team examining evidence of early human activity in the Amazonian forest in the form of earthworks scattered across the area. His statistical expertise helped uncover the fact there are at least 10,000 earthworks hidden in the forest, 10 times more than previously thought.

Elsewhere in the magazine is the lower-profile—but no less gratifying—story about how an eagle-eyed statistician and his dad in Missouri convinced a state lottery to redo the probability calculations on its playslip. Their mission has since turned into an undergraduate-driven project.

The takeaways from both articles? Statisticians should step outside their comfort zone when an interdisciplinary or “real-world” opportunity beckons.

Following are highlights from the rest of the issue:

- **Use of Force in Prisons**
Explore the rise in use of force in California’s high-security prisons.
<https://tinyurl.com/yaw3bvch>
- **History’s Lessons for AI**
How can AI developers learn from statistics pioneers?
<https://tinyurl.com/s453v742>
- **What’s in a Name?**
The winning entry in our writing competition explores data linkage with the help of Arnold Schwarzenegger.
<https://tinyurl.com/4ya2jsjw>
- **Bad Stats**
This new regular series revisits well-known statistical slip-ups. This issue: Danish sunbathers and immortal time bias.
<https://tinyurl.com/2w55jyb4>

Log in to your ASA account to access the digital version of *Significance*. Print issues will be mailed to subscribers soon.



Pawel Nazarewicz: AP Statistics Teacher Extraordinaire

Chris Franck, Associate Professor, Virginia Tech



Pawel Nazarewicz



Chris Franck is an associate professor in the department of statistics at Virginia Tech.

I recently had a chance encounter with a statistician—Pawel Nazarewicz, AP Statistics teacher extraordinaire—grading homework at my son’s gymnastics class. As Nazarewicz described the interactive and data-centric activities he uses in his class, my own imagination was ignited, and I felt like a young statistician again. Nazarewicz agreed to an interview to share his current interests and insights as they pertain to the AP Statistics program and statistics more broadly. I share that with you here.

How did you discover the statistics field?

I graduated from high school in 1998, before my school offered the AP Statistics exam, just missing that window. I honestly think I would have majored in statistics if I had been exposed to it in high school because of the applied nature of the field. Honestly, when I started studying mathematics in college, a lot of it was very abstract and theoretical and not nearly as

interesting as the application-based possibilities in statistics.

When I got my math education degree from the University of Georgia, I took a couple courses in statistics. But I really started getting into statistics when I started playing online poker and reading some of the more popular culture books about statistics such as *Foiled by Randomness*, *Black Swan*, *Freakonomics*, and *Signal and the Noise*. Around the 2012 election, I began following Nate Silver’s political modeling, trying to predict the election outcomes using uncertainty, margins of error, and dependent outcomes. I was hooked.

Currently, I teach AP Statistics at Salem High School in Virginia. We’ve grown the AP Statistics class from one section of 17 students in 2017 to more than 80 students during the 2023–2024 school year. Whenever I teach statistical topics, I try to think about real-life examples. We discuss finance, sports, political campaigns, real estate, poker, and anything else that might interest the students.

Tell us how you get students engaged while teaching AP Statistics.

Whenever we introduce a new topic, I try to start with a question or task that can elicit 100% class participation. For example, I’ll ask the students how many pets each of them has. We’ll then plot the data on a dot plot, often with an outlier when a student says, “I have 15 fish, three dogs, and a cat.” Or, “We have 43 rabbits, and I consider all of them my pets.”

This also allows me to start getting to know my students as individuals and the classroom dynamic as a whole. I write the data on the board and ask the students one thing we can now do with it. Inevitably, someone will mention finding the average. So, now we are off to the races discussing one-variable statistics and introducing more formal vocabulary terms such as outliers, quartiles, and boxplots.

As we’ve seen with the popularity of apps like Instagram and Snapchat, people love to be able to talk about themselves and get insight into their peers. Essentially, we engage in an activity, share with the class, and discover statistics from that.

One of my core beliefs is that learning can’t happen without engagement. Real-life examples, especially those that come from student-shared data, lead to high engagement. The most memorable, and thus effective, lessons in statistics are those rooted in relevant and real-life student experiences.

During one of our early conversations, you told me about how you have students use Zillow to gather their own data so you can teach regression. Could you share that anecdote here?

Definitely! I think real estate is one of those things that is naturally of broad interest. Zillow makes gathering data about real estate engaging because many people like browsing and looking at what other houses in their communities look like. So, I start the exercise by opening

Zillow and looking at pictures of a house for sale. We talk about the house—what students like and dislike. I then go into a little bit of detail about what I like and dislike about the house as a potential investment. Students are quick to share their opinions since there is no right or wrong—it’s simply what they like and dislike about what they see in the pictures.

Zillow has a proprietary algorithm that gives the value of a house, the “Zestimate.” We look at a bunch of houses close to a particular neighborhood and collect the Zestimate values in one column with corresponding square footage in another. I then ask students to find houses they would consider under and overpriced based on those two columns.

Often after collecting data, we try to organize it into a visual—in this case, a scatterplot. So, then we would create a scatterplot where we have the square footage of the house on the x axis and the estimated value on the y axis. And then I would ask the students what they notice about the data in the scatterplot. A recent data collection looked like Figure 1.

Next, we start to extract the statistics from the analysis. We discuss a general framework for describing a bivariate relationship (including shape, direction, and strength). This leads to a discussion of a regression line, correlation, and residuals and outliers. One of the specific points is the original house we started with. We can point to it and describe it in the context of that sample.

As before, start with low-hanging fruit that draws out engagement. Everyone knows what a house is. People have a sense of square footage. In general, we expect bigger houses to be worth more than smaller ones. But not all of them are! Then,

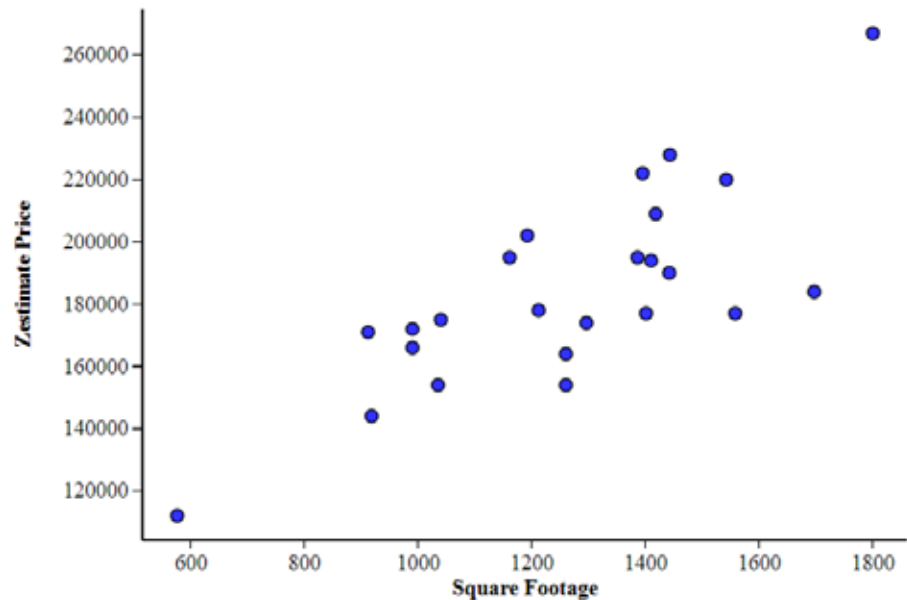


Figure 1: Scatterplot from Zillow data

slowly introduce common vocabulary and concepts that will help us discuss the issue more formally.

I can see how the students are engaged by this approach! I wish we had shared data analytic spreadsheets when I was a kid. Getting promising students interested in statistics is a major service to our discipline. Can you tell us about your approach here?

At a lot of schools, statistics is seen as the course for students who are not quite able to hack calculus. Breaking that stigma in the minds of the student body is critical. At Salem High School, we encourage all students who like math to take both AP Calculus and AP Statistics, rather than routing the strongest only to calculus and the remainder only to statistics. All our strongest students double up at some point.

Is there anything the broader statistical community can or should do to contribute to the health of AP Statistics?

Making high school students aware of all the professional opportunities that exist in the statistics field. Discussing potential employment opportunities and what would be expected of people doing those jobs.

What’s the most important statistical lesson you hope your students learn in AP Statistics?

You know the expression, “A picture is worth a thousand words”? Creating a visual that highlights the topic or concept you are trying to communicate is infinitely more powerful than any numeric summary.

For example, in basketball analytics, they make heat maps of the locations from which players take shots. I saw one that had the Houston Rockets and

it was immediately clear almost all the shots were either dunks/layups or three-pointers. While there are some mid-range jumpers, players were mostly taking dunks or layups (very high probability shots) or three-pointers, which are worth 50% more than dunks and layups. So, the three-pointers were kind of lower percentage shots, but they were worth more. So, the expected value was still pretty high, right? Whereas, if you take a long two-point shot, you're only getting two points, and it's a lower probability than a dunk or layup.

So, while you can talk about all these things, showing students a heat map is much more powerful. Same with a good scatterplot, histogram, etc. Humans are a visual species. If you can narrow down the essence of the thing you're trying to say to a graph or an illustration, then you are going to be able to communicate on such a more visceral level. You are going to be much more effective than if you just present a lot of numbers. I would say the art of statistics comes in being able to communicate the data through visuals.

What part of your job do you like best?

I like coming in and having conversations about things I find interesting with people who are also interested. My students are on their way to adulthood and are soon going to be having to make some major decisions about what they want to study and what they want to do. They are in a transition stage, heading toward adulthood, with their whole life in front of them. I firmly believe the world is becoming increasingly data-driven and exposure to statistics at the high school level will help them navigate this brave new

world. Increasingly, more jobs require people to have a rudimentary-to-solid understanding of data and statistics and be able to engage in conversation related to those topics. So, I want to expose my students to this world early.

No job is perfect. Can you tell us what your least favorite part of the job is?

Like most teachers, I don't like the whole process of grading. I also understand how important feedback is for the students. And students need to be assessed regularly so they can make adjustments and the teacher can potentially make adjustments. Other than that, I work with great kids and a supportive administration and department.

ChatGPT and other AI platforms have sort of taken the world by storm. I think a lot of people in our generation (I am 41) worry about how AI that can competently do a students' homework will impact education. Have you seen anything about recent technological developments such as ChatGPT that are impacting your teaching?

I don't think they're impacting my teaching. I think if ChatGPT can work out a student's homework, I have to question how valuable that homework is in the first place. Teachers in the English department have told me it is blatantly obvious when a paper was written by an AI bot. Then again, I know things are going to get increasingly more sophisticated. In some ways, it's a little like the Turing test—how do I know if the work that's presented to me is from that specific student or something else?

I want students to be able to think and communicate

statistically in the end. I have some sort of brief conversation with most of my students daily, which gives me good insight into their current level of understanding. If a student is seldom able to engage in meaningful conversation in class but suddenly starts excelling at formal assessments, that would be a red flag that would warrant additional investigation, especially if it happens more than once.

I almost never grade homework; I believe it's just an opportunity for students to get additional practice outside the classroom and help them prepare for formal in-class exams. So, I honestly don't know how someone could use ChatGPT inappropriately in my class.

In fact, my students overwhelmingly prefer paper and pencil exams. They like working out problems on paper, showing all their work, and then getting feedback in that format. That said, for very large lecture classes, it becomes more difficult and more expensive to do all pencil and paper exams. It takes a little longer to grade, but a teacher can have much greater confidence in the integrity of the results of the assessment.

There is a little humor and irony here. I noticed you grading statistics homework at our kids' gymnastics class. That isn't your favorite part of the job but it is the reason we recognized each other as statisticians. We probably wouldn't have met if you hadn't been diligently working on the part of your job that is your least favorite.

Agreed! Life can be full of serendipity when you pay attention to what's going on around you. ■

Welcome TO OUR NEWEST MEMBERS

Farshid Abadizaman	Theodore Jay Chapman	Kelly Findley	Yuan Huang
Fatma Abdel-Raouf	Huiding Chen	Erin Nicole Forger	Stephen Iaquaniello
Ebenezer Acquah-Bentil	Jiayu Chen	Charlotte Fowler	Stephanie Izard
Isaac Adisa	Li Chen	Robert G. Fowler	Ajmetry Jaman
Peggy Akabuah	Rebecca Chen	Max Freitas	Nadeesha Jayaweera
Oluwafunto Adepeju Aladekomo	Tony Chen	Margaret Njeri Gacheru	Chaewon Jeong
Joseph Omar Alanis	Xiaoxu Chen	Manasa Gadapa	Bohan Jia
Alejandro Allier	Ming Yin Nio Cheung	Haitao Gao	Sammi Jiang
Francis Mawutor Amuyao	Lily Chou	Luna Gao	Bo Jin
Chityala Anudeep Reddy	James Clothier	Zhiyuan Gao	Wanting Jin
Emmanuella Anowa Appiah	Adriana Larisa Cociorvan	Li Ge	Andrew Johnson
Roberto Arias	JoAnn Coleman	Renee Ge	Margaret Johnson
Stephanie Armbruster	David Corinchock	Meghan Gerety	Thomas Hilton Johnson III
Joseph Arvay	Darryl V. Creel	Pranab Ghosh	Jennifer Joseph
Christopher Attafuah	Enchang Cui	Andrew Gille	Gina M. Jouaneh
Lynn T. Aung	Chad Daniel Curtis	Joseph Godinez	Tianna B. Juarez
Ritwik Awasthi	Jason M. Dahl	Tingnan Gong	Yagmyr Jumamyradov
Colton Baker	Jarrod E. Dalton	Eshanya Gupta	Shankar Kaleeswaran Mani
Wimonmas Bamrungsetthapong	Liam Jerrine Daly	Prince Kwame Gyimah	Claudia Kalina
Patrick Bautista	Soha Dargham	Kristen Hallas	Hsiang Lun Kao
Jessica A. Behrle	Joshua Day	Peirong Hao	Pei-Chi Kao
Ayishih Bellew	Shanshan Ding	Jonathan Hasian	Liliana I. Kasta
Smita Bhat	Sushovan Dixit	Haposan	Achint Kaur
Jiaqi Bismark Bimpong	Yaqi Duan	Mustafa Haque	Mathew Kelley
Nannan Bo	James Terish Bino Duraimony	Solomon Woldemariam Harrar	Thomas J. Kerby
Emmanuel Boadi	Isabella Evelyn Eaton	Eric P. Hathaway	Gregory Keslin
Hayat Botan	Saya Egashira	Michael Hellstern	Godfred Ahenkroa Kesse
Coleman Breen	Esraa Mahmoud Ahmed Elnaiem	Christian Hernandez-Sanchez	Eric Kim
Christine Bui	Daniel R. Eno	Torey Hilbert	Mark Kingsbury
Lyle Burgoon	Radhika Etikala	Benjamin Peter Hislop	Jessica Lynne Kotlarek
Peter J. Calandra	Taiwo Helen Fagbohunbe	Jessica Hoehner	Carrie Krimm
Andrew Cannon	Amanda Falke	Ting Hong	Wiyada Kumam
	Alonzo Charles Finch	Kodjo Houssou	Raymond L. Lam
		Weiyi Huang	Sunny Le

Seunghoon Lee	Zekariyas Sahile	Julia Shoobe	Derek Wilus
Young Joo Lee	Nezenega	Isabella Shubert	Michael Thomas
Ning Leng	Matthew Nix	Mariana Sierra	Wojnowicz
Kevin Yukang Li	Maria Nolzco Masson	Fabiola Signorini	Bowen Wu
Michael Lingzhi Li	Michelle Nwana	Noah Simonds	Ellen Wu
Sarah Li	Francis Okyere	Luke Singh	Yifan Wu
Shuoran Li	Erika Olivares	Byran Jay Smucker	Ryan Xie
O'Hara Liam	Everardo	Haojia Song	Hanxiang Xu
Nan Lin	Olivares-Vargas	Lexue Song	Wanping Xu
Zewei Lin	Keo Pangan	Xiaoyu Song	William Xu
Chen Liu	Ariadni D. Papan	Willian Stewart	Yuejun Xu
Jingyun Liu	You Been Park	Lucas Streng	Wujian Xue
Jun Liu	Elise Pasles	Lisa M. Sullivan	Chang Yan
Qingyang Liu	Brandon Pate	Keying Sun	Donglin Yan
Yunqian Liu	Sunilkumar V. Patel	Rajeshwari Sundaram	Bo Yang
Yuxing Liu	Joel A. Patino-Guzman	Nicholas Surguladze	Eric Yang
Hedibert F. Lopes	David Paulik	Auychai Suvanujasiri	Xinyue Yang
Edward Kevin Love	Gautier Paux	Ahmad M. A. Talafha	Liwen Yin
Kaiwen Lu	Keshav Prasad Pokhrel	Ryley Tauzer	Lauren Yoksh
Kareen Luevano	Giovanni	Kristal Taylor	Bo Yu
Brandon Lum	Camillo Porzio	Khalid Tejan-Sie	Guo Yu
Fangzhi Luo	Hannah Pozezinski	Lauren Terr	Joshua Yu
Shanshan Lv	Adiba Promiti	Ariana Teruel	Rifat Zahan
Chunlu Ma	Torin Quinlivan	Ziye Tian	Marta Zahlynska
Jennifer Ma	Jaqueline Quintanilla	Zada Timob	Dabao Zhang
Peter William	Shun Rao	Sebastian Torres	Jingyan Zhang
MacDonald	MD Abdur Rauf	Alemtsehai Abate	Joia Zhang
Terrence Kudakwashe	Mark Reedy	Turasie	Junxin Zhang
Madanhi	Victoria Rey	Indika Gayani	Yichen Zhang
Satya Sukumar	Johnathan Ross	Udagedara	Yiming Zhang
Makkapati	Kollin W. Rott	Chukwuma Bright	Dan Zhao
Muhammad	Sudeshna Roy	Ugoala	Mingduo Zhao
Osama Malik	Anastasiia Saenko	Gabrielle Walczak	Yihao Zhao
Alexis Marquez	Natalie Sakamoto	Chushan Wang	Zhihao Zheng
Jackson S. Marsh	Zahra Saki	Fangyu Wang	Alan Zhou
Spencer R. Matthews	Ibrahim A. Salama	Lan Wang	Keru Zhou
Qier Meng	Santiago Sanchez	Shane Wang	Yiwang Zhou
Sherif Mohammed	Supriya Satwah	Shiyan Wang	Haobo Zhu
Isabel Molina-Peralta	Olivier Scaillet	Yirun Wang	Ke Zhu
Suzanne Moody	Garrett Scapellato	Marianthie Wank	Wanrong Zhu
Luis E. Moreno	Ryan Schulken	David Watson	Michelle Zhuang
Keshav Motwani	Omar Seidu	Fangyi Wei	Yan Zhuang ■
Rajiv Movva	Xinyi Shang	Jillian A. Whitton	
Clement Mugenzi	Hui Shao	Jenna Marie Wilkie	
	Ye Shen	Cody Williams	

New Member Spotlight: CHRISTIANAH JEMIYO

This month, we spotlight new member Christianah Jemiyo, a research scholar/data analyst at the University of North Dakota, who answered the following questions so we could get to know her better.



Jemiyo

How did you become interested in statistics and/or data science?

My interest in statistics began during my undergraduate studies at Ladoke Akintola University of Technology in Nigeria. This interest deepened through my research experiences during my master's programs at the African Institute for Mathematical Sciences in Senegal and Stellenbosch University in South Africa, where I applied statistical models to public health data. Over time, I've developed a strong passion for epidemiology and biostatistics, with a focus on addressing chronic and infectious diseases and health disparities.

What do you consider your dream job?

My dream job is to work as a biostatistician or data analyst at a leading multidisciplinary research institute such as the National Institutes of Health or the US Centers for Disease Control and Prevention. I aspire to apply advanced statistical methods to address health inequities, particularly in chronic disease prevention and management, and to use data science to drive meaningful improvements in public health outcomes for underserved populations.

What do you hope understanding statistics and/or data science helps you accomplish?

I hope understanding statistics and data science helps me uncover insights into the social determinants of health and contributes to more equitable health care policies. My goal is to develop predictive models that improve our understanding of health outcomes and inform strategies to reduce disparities in chronic disease risk and aging.

Is there a particular group of statisticians you would like to reach out to you?

I am eager to connect with statisticians working in public health, epidemiology, and biostatistics. Collaborating with professionals focused on health disparities and chronic diseases would be invaluable, as I believe our combined efforts can lead to impactful research that not only advances knowledge but also informs and shapes health policies for lasting change.

What is your favorite hobby?

My favorite hobby is being in pictures. I enjoy capturing moments and being part of the memories in the photos I take.

What is something you would like people to know about you that we haven't asked?

I have a deep passion for interdisciplinary research that bridges biostatistics, public health, and epidemiology. My work is driven by the goal of addressing health inequities and improving outcomes for underserved populations, particularly in chronic disease prevention and aging. But what use is research if it doesn't translate into actionable policies and interventions that truly impact public health? I am committed to ensuring my research not only advances scientific understanding but also informs public health strategies that make a lasting difference.

Fourth ASA Survey of **Bachelor's Graduates** Tracks Rapidly Evolving **Job Market**



Graduates Generous with Advice for Current, Prospective Students

Steve Pierson, ASA Director of Science Policy, and Kiana Moore, ASA Policy Consultant

With the emergence of data science, machine learning, and AI, much has changed in the job market since the American Statistical Association's first follow-up survey of bachelor's graduates in 2017. This fourth survey of the graduating class of 2023 covers many changes, as well as considerable consistency.

- Besides median starting salary of the respondents for each cohort increasing from \$56,000 for the class of 2016 to \$72,000 for the 2023 class, our survey now covers use and development of machine learning and AI.
- Handshake is more widely used in job searches, and there are fewer mentions of Glassdoor; LinkedIn seems to be maintaining its utility and use.
- Python and SQL are more widely used, while SAS is a bit less so.
- We no longer query the use of JMP, Minitab, and SPSS; PowerBI seems to be on the rise and is likely to be included in our next survey.
- We're also documenting the use of certificate and related courses students and graduates use to augment their statistical, computing, and data science courses.
- Job satisfaction and diversity is as high as ever, as well as the importance of teamwork; the wide use of Excel; and the value of extracurricular experiences like internships, research, and coops.
- Respondents are enthusiastic and helpful about sharing in open-ended questions asking about their job searches, what undergraduate experiences likely helped, what they would have done differently, and what advice they have for current students.

The surveys, available at <https://tinyurl.com/yc4zafzt>, provide snapshots of the job market experienced by graduates during the dramatic growth in statistics degrees earned annually over the past decade—nearly a three-fold increase for bachelor’s degrees, as reported in the November issue of *Amstat News*—and allow insights into how student interests, the job market, and curriculum may be changing.

The results are intended to be helpful to three main audiences: current statistics students to inform both their remaining studies and planning for post-graduation; potential statistics students as they decide on a major(s); and faculty and administrators as they advise students, design curricula, and allocate resources. To be especially helpful to the third audience, department-specific reports are provided to departments with enough responding graduates. This year, 24 departments received such reports.

Survey Respondents Overview

Participating in this year’s survey were 334 graduates from 37 universities. The survey was distributed in spring 2024 and asked about employment or graduate student status as of March 4, 2024. These numbers are a decrease from the 2021 survey of the 2020 graduates, when 425 graduates from 57 universities participated. The number of 2023 bachelor’s graduates in statistics and biostatistics was 5,547, as reported by the National Center for Education Statistics for the 2022–2023 academic year.

Of the 284 individuals who responded to the gender identity question, 109 selected woman, 171 selected man, and four preferred not to say. The percentage who are women, 38%, is close to the 39% in the NCES data.

For citizenship data, where NCES data shows 27% of 2023 bachelor’s degrees going to nonresidents, only 14% (41) in the ASA survey reported being non-US citizens (25 from China) and 86% (244) reported being US citizens. These numbers follow closely those for the combined numbers from the survey of the 2016, 2017, and 2020 graduates.

The universities with the most bachelor’s degree recipients participating in the survey were Brigham Young University (62), University of Virginia (35), University of Michigan-Ann Arbor

Table 1—Breakdown of Respondents’ Employment Status as of March 4, 2024

Post-Degree Outcome	N	Percent
Employed	204	61%
Student	85	26%
Unemployed seeking	20	6%
Unemployed not seeking	3	1%
Left US	9	3%
Full- or part-time intern	8	2%
Other	4	1%
Total	333	

Table 2—Median and Quartile Salary by Gender

	N	Quartile 1	Median (\$K)	Quartile 3
	168	58.0	72.0	85.0
Woman	63	54.0	67.5	82.0
Man	87	64.5	76.0	90.0

(33), The University of North Carolina at Chapel Hill (31), University of California, Los Angeles (27), Michigan State University (18), Cornell University (13), Columbia University (12), and University of Florida (11).

After their undergraduate studies, more than twice as many respondents received jobs as continued their studies, roughly the same as for the classes of 2016, 2017, and 2020. See Table 1, which also provides information about students who are unemployed, left the US, and have internships. The 2023 number of unemployed and seeking a job is 6%, larger by a percentage point from the Class of 2020 respondents. Eighty-eight listed themselves in full-time degree programs, and another 59 said they were planning to begin a degree program in the future.

Employed

The respondents who obtained jobs seem to be well paid and generally satisfied with them. They also work for a diverse and large number of employers with generally unique job titles in a variety of sectors. The median salary for those reporting it was \$72,000. While this amount is more than that

of the bachelor's 2020 cohort median of \$69,900, these salaries are a small sample of the total population and should be analyzed with caution. Salaries tend to depend on the bachelor's specific field and work sector. For similar reasons, we also don't recommend drawing conclusions about gender salary comparisons.

For an approximate comparison of salary with other majors, a graph for 2021 and 2022 physics bachelor's graduates from the American Institute of Physics website (<https://tinyurl.com/ut8xuu4b>) shows an average salary of approximately \$65,000. The most recent data from the National Association of Colleges and Employers released in September 2024 shows an average starting salary of \$91,000 for 2023 computer and information sciences graduates, \$80,000 for engineering graduates, and

\$80,000 for mathematics and statistics graduates. For all 2023 college graduates, they reported an average starting salary of \$64,000.

The next three tables show the median salaries as broken down by specific bachelor's field (Table 3), employment sector (Table 4), and state (Table 5). N is the total number of respondents from the class of 2023 who reported that category, n is the subset who reported salary, and the number in parentheses is the number of n who are women.

Respondents in the specific fields of actuarial science and data science had a higher median than those in other fields. Of the overall 332 (N) who characterized their undergraduate field (Table 3), 60% listed general or applied statistics and 18% listed data science.

Table 3—Specific Field of Bachelor's Degree and Median Salary for $n > 5$

Bachelor's Degree Field	N	n (women)	Salary Median (\$K)	Women	Men
Overall	332	168 (63)	72.0	67.5	76.0
General Statistics	130	54 (26)	70.4	71.0	68.9
Applied Statistics	70	41 (20)	70.0	66.8	70.0
Statistics and machine learning	21	10 (3)	61.8		
Actuarial science	16	12 (1)	78.9		
Biostatistics	19	9 (1)	70.0		
Data science	60	37 (10)	75.6	66.0	80.0
Mathematics, with stats emphasis	10	4 (2)			
Other	6				

Table 4—Employment Sector with Median Salary by Gender for $n > 5$

Sector and Subsector		Median Salary (\$K)			
		n (Women)	Overall	Women	Men
1	Educational institution	15 (11)	52.0	54.0	
4	-Four-year college or university	9 (8)	52.0	52.0	
5	-University-affiliated research center	4 (3)			
2	Private sector	132 (42)	78.0	79.0	78.0
1	-Company or business	105 (32)	77.6	79.0	76.4
2	-Government contractor	6 (4)	75.0		
3	-Consulting	19 (5)	80.0	80.0	82.0
3	Government	14 (6)	70.0	72.0	68.0
1	-Civilian government	10 (6)	72.0	72.0	72.8
4	Nonprofit organization	10 (4)	62.2		70.0
5	-Hospital or medical facility	6 (2)	59.5		
6	-Other	2 (1)			



Table 5—Median Salary by State for $n > 6$.

State	n	Median (\$K)
Utah	28	68.6
California	23	70.0
Virginia	19	80.0
Michigan	15	70.0
North Carolina	12	74.0
New York	10	92.5
Massachusetts	7	82.0

The large majority of those who went directly to the job market are in the private sector, which is the sector with the largest median salary for the 2023 respondents (Table 4). Of those in the private sector, most worked for a company or business. Many of the job titles for the 2023 graduates employed in March 2024 and the companies employing them are available in the additional materials for this article and may provide further insights. By state, the highest median salary (for $n > 6$) was in Massachusetts, New York, and Virginia, as shown in Table 5.

The majority (58%) of employed graduates received one job offer, 26% received two, 8% received three, and 5% received four or more. Fifty-eight percent of those responding thought their statistics or statistics-related major was very influential in securing their current position; 25% responded it was somewhat influential.

The responses from bachelor's degree graduates about their job search experiences highlight a variety of outcomes, with many emphasizing the importance of internships, networking, and persistence. Some respondents secured positions through internships at the same companies they worked for during their studies, while others struggled with the competitive job market, often applying to

numerous jobs before finding success. LinkedIn, Handshake, and Indeed were popular tools. Here are select responses (with all responses posted in the supplemental material):

- “Networking was a big help for me. I applied to a lot of jobs on LinkedIn, but only heard back from companies I had connections to. A friend in the stats program referred me to the position I’m at now.”
- “I used Handshake during October of my senior year. Through Handshake, I was able to schedule in-person interviews on campus. Having university-hosted interviews helped me network with the right people in companies I was interested in.”
- “I participated in an internship my junior year of college, after being contacted by a recruiter on the job site Handshake. I was then offered to return to the company full time a month after my internship ended. I accepted and did not really apply to other full-time positions afterwards.”

The responses about experiences, training, or qualifications that could have helped bachelor's degree graduates secure a position highlighted a

Table 6—General Work Skills as a Percentage of Approximately 187 Responding

General Work Skills	Rarely or Never	Monthly	Weekly	Daily
Working on a team	4.8%	2.1%	24%	70%
Teaching	54%	28%	14%	4.5%
Public speaking	39%	27%	27%	7%
Working with customers/clients	42%	16%	19%	24%
Technical writing	29%	24%	29%	17%
Nontechnical writing	20%	14%	27%	40%
Managing people	79%	7.5%	5.9%	8.1%
Managing projects	29%	13%	20%	28%
Managing finances/budgets	77%	7.5%	5.9%	9.1%

Table 7—Technical Skills as a Percentage of Approximately 183 Responding

Technical Skills	Rarely or Never	Monthly	Weekly	Daily
Solve technical problems	8.6%	11%	24%	57%
Quality control	26%	15%	30%	29%
Use statistics or advanced math	30%	23%	25%	22%
Analyze and interpret data	11%	6.6%	22%	60%
Query databases	24%	15%	20%	41%
Use/develop statistical models	51%	22%	14%	13%
Use machine learning models	67%	16%	6.6%	10%
Develop machine learning models	81%	8.2%	2.7%	7.7%
Use generative AI algorithms	74%	7.7%	9.8%	8.2%
Develop AI algorithms	94%	2.2%	1.1%	2.7%
Design experiments	80%	12%	6.0%	1.6%
Survey research	78%	14%	4.4%	3.8%
Programming or systems software	24%	15%	15%	46%
Data engineering or software development	61%	8.9%	8.9%	21%
Tech support or computer administration	76%	9.9%	7.2%	6.6%
Manage databases	46%	20%	14%	20%
Data cleaning	25%	15%	29%	31%
Data processing	23%	16%	24%	37%

strong emphasis on technical skills, internships, and research opportunities. Many respondents noted the importance of specific skills such as SQL, Python, database management, and data analytics, while others pointed out the value of internships and research during their degree programs.

Overall job satisfaction was high, with 80% of respondents expressing satisfaction across several categories. Specifically, 44% reported being satisfied with their position (38% very satisfied); 41% with salary and benefits (31% very satisfied); 34% with job security (44% very satisfied); 32% with

opportunity for advancement (25% very satisfied); 37% with intellectual challenge (32% very satisfied); and 42% with level of responsibility (25% very satisfied).

There were 140 unique job titles among 195 job titles reported. (The lists of job titles and companies are available in the supplemental material section.) The most common job titles were data analyst (16), actuarial analyst (12), data scientist (8), and analyst (6). There were also seven titles that were variations of software engineer. These five titles were also the most common job titles for the previous cohorts. Listed were 161 unique employers (of a total 189). Deloitte and Goldman Sachs were the only companies employing more than two of the respondents.

The 163 graduates who categorized themselves as employed and provided the state were employed in 28 states and the District of Columbia.

Respondents were also asked about frequency per month of formal presentations, with 42% saying none, 29% saying once, and 15% saying twice.

The questionnaire also asked those employed about the frequency of many skills they use in their work. For interpersonal, communication, and management skills (Table 6), teamwork is the most often used by far, followed by nontechnical writing and project management. The most-used technical skills, as shown in Table 7, are data analysis and interpretation, technical problem solving, programming or systems software, querying databases, and data processing. Data cleaning, quality control, use of statistics or advanced math, and data engineering or software development are in the next tier of most-used technical skills. Respondents also mentioned data visualization and app development.

The survey also asked the tools/languages new bachelor's graduates use and with what frequency. The most frequently used at least weekly were—in descending order—Excel, SQL, and Python (Table 8). In the “other” category, among the 27 tools named, the most common were PowerBI (10), C# (3), and AWS (3).

Postgraduate Study

Of the 88 respondents who reported they were full time in a degree program, 27 specified a statistics program, seven a biostatistics program, 15 a data science program, and 40 others in 15+ other programs. Fifteen of the graduates were enrolled in doctoral programs and 62 were enrolled in master's programs, though 21 of the students intend to earn a doctoral degree.

Table 8—Frequency of Statistical Programs/Software Use

	Rarely or Never	Monthly	Weekly	Daily
R	64%	12%	8.0%	16%
SAS	88%	3.4%	4.0%	4.5%
Excel	11%	12%	19%	59%
Python	46%	21%	13%	20%
Java	90%	5.6%	1.7%	2.2%
SQL	43%	16%	15%	26%
Tableau	71%	11%	9.0%	9.0%
Other	47%	7.6%	11%	35%

Table 9—Most Common Second Major

2nd Major	n
Economics	23
Mathematics	22
Computer science	15
Data science	10
Biology	9
Political science	8
Statistics	7
Psychology	6
Other	6

For the 21 full-time students who reported a stipend, the median 9-month stipend was \$26,100. Twelve of these people had a summer stipend for which the median was \$8,500.

Undergraduate Study

A sizable portion of the graduates participating had busy academic schedules with both their courses and non-classroom engagements with statistics. Roughly a third of respondents (119) said they graduated with a double major, with the most common companion majors being economics and mathematics (Table 9). One hundred fifty-three graduates (47%) indicated they minored in a field, the most common being data science (28), computer science (16), business administration (14), mathematics (13), economics (8), biology (6), environmental science (5), and psychology (5).

Feedback Wanted

To accurately track changes in the job market for statistics bachelor's graduates, let ASA Director of Science Policy Steve Pierson (spierson@amstat.org) know how to update the questionnaire. He also welcomes input about the frequency of the survey and all its aspects—from questions and administration to reporting and dissemination.

To probe the outside-the-classroom learning experiences of undergraduates, the survey asked about internships, research, and capstone projects and how they regarded such experiences for their education and career. One hundred ten graduates said they did a thesis or capstone project, 162 did an off-campus internship or industrial co-op, 120 did on-campus research, 53 did a DataFest or hack-a-thon, 23 did a National Science Foundation Research Experience for Undergraduates, 27 did other summer research on another campus, 60 did a conference presentation or attended a conference, 63 did a graduate course, 47 did an on-campus internship, 22 did consulting or freelancing; and 71 served as a teaching assistant.

For these experiences, graduates were asked, “How do you feel your above experience(s) affected your current situation?” The open-ended responses, available to view in the supplemental material, seemed to be overwhelmingly positive about how their undergraduate statistics experiences outside of regular classroom assignments had a significant impact on their careers and academic advancement. These experiences provided practical skills, enhanced résumés, and real-world applications of their academic knowledge.

The following are a few of the nearly 200 responses:

- “My internship led to a job offer, and without the valuable experiences I gained from the research I conducted, I would not have been able to land my internship.”
- “They enriched my skills to be able to apply what I had learned in the classroom to real-world problems.”
- “Being a TA is [a] good experience in teaching, public speaking, and general communication, as well as making you more of a subject expert in whatever class you’re teaching.”

- “My internships allowed me to experience corporate life before graduating. Starting my first job, I felt completely prepared.”

The responses from bachelor's degree graduates about what they would do differently regarding their undergraduate education reflect a variety of perspectives. Many emphasized the importance of gaining more technical skills, such as programming and machine learning, or pursuing additional majors or minors. Some students would have chosen differently with respect to their field of study and concentration. For example, some would have added more applied courses while others would have chosen a different STEM-related major or minor, including data science, business analytics, computer science, and computational math. A significant number of respondents wished they had focused more on internships, research opportunities, and real-world experience, while others felt content with their educational choices.

Responses among the 180 included the following:

- “Try harder to get involved! Talk to faculty/grad students about opportunities and try harder to obtain a summer internship or research experience.”
- “Pay more attention on coding and interpreting skills. Also, more actively looking for internship.”
- “I would have attempted to go into research at an earlier time and gone to more office hours to connect with my professors.”
- “Find ways to learn how to convey technical information in a non-technical manner.”

Many of the respondents also commented they wouldn't have done anything differently in their postsecondary education.

The advice provided for current statistics students tracked with the responses above about what graduates would have done differently as students. The responses provided advice and additional comments for current students in statistics, biostatistics, and related fields, focusing on practical



skills, networking, internships, and the challenges of the job market, as reflected in the following select responses:

- “Ask for research opportunities or go to a university where research opportunities are available for undergraduates.”
- “Find as many opportunities to practice statistical skills and apply them to your résumé. In general, be able to talk about the math, it’s not enough to just be able to do the math.”
- “Go out of your way to constantly learn more things. Take courses to gain new tools, such as Excel, Python, SQL. Anything to help your résumé.”
- “Network and minor in computer science. Also, work on projects and present them to stakeholders/peers.”
- “Focus on understanding the current DS/stats landscape and building skills outside of your coursework.”

Students were generally quite positive about how well their undergraduate program prepared them. Ninety percent agreed or strongly agreed their program prepared them to effectively analyze and interpret data critically using statistical models, and 81 percent agreed their program prepared them to effectively communicate both orally and in written form results of statistical analyses to a variety of audiences. Ninety percent agreed their program prepared them to effectively analyze and interpret data critically using computational methods.

The survey was conducted by the American Institute of Physics research team. The ASA provided department names and contacts for the departments granting statistics or biostatistics degrees according to its records. For both the bachelor’s and master’s graduates, the research team reached out to 157 departments, receiving the names and contact information for 1,721 bachelor’s graduates, who received up to four invitations to participate in the survey. Departments that did not provide contact information for graduates were asked to distribute survey invitations to their alumni.

A sizeable percentage, 26%, said they participated in any certificate or related non-university programs to augment their statistical or data science skills. The 60 responses include Coursera, DataCamp, and a plethora of other options listed in the supplemental material.

Regarding their job search, students generally took advantage of help from their statistics department and faculty or the on-campus career counseling center. Fifty-seven percent of those responding said their statistics department or the faculty provided career guidance, and 42% said they used their on-campus career counseling center. The responses regarding experiences with on-campus career counseling centers from bachelor’s degree graduates were varied. Some found the services useful for résumé building and job fairs, while others thought the support was limited or generic. The overall sentiment was that the career centers provided some value but often did not make a significant impact on job placement. ■

MORE ONLINE
To view the supplemental material, visit *Amstat News* online at <https://magazine.amstat.org>.



STATS4GOOD

Data for Good: The Year in Review *and* 2024 Challenge Winners



2024



David Corliss is the principal data scientist at Grafham Analytics. He is the founder of Peace-Work.

This year has seen an explosion of innovation in statistics and data science. While much of it has been made possible by increases in computing capability and the ongoing AI revolution, statistical science remains the real power. And with these new capabilities, Data for Good researchers and advocates are empowered to accomplish more high-impact work than ever before.

The increasing visibility of statistics, data science, and AI gives us greater access to the public square. At the same time, it brings greater awareness to problems, and while the power of statistical science is greater than ever, distrust is at an all-time

high. We, as advocates for both doing good and doing things right, hold in our hands the ability to reshape the public perception of statistics, data science, and AI.

The American Statistical Association as an institution and many of its members are active in developing and promoting statistics and data science curricula. Through membership in the Computing Sciences Accreditation Board, the ASA contributed to new standards for data science programs, three of which received accreditation this year.

As an advocate for Data for Good, I encourage the ASA through the Computing Sciences

Stats4Good exists to applaud and strengthen your work, provide resources, and foster greater connectivity within the data for good community.

Accreditation Board to work toward making an ethics course a required part of accredited data science programs, just as it is in other professions but especially those in which statistics and data science play a vital role, such as medicine, law, and accounting.

In January, I highlighted a group of issues as top priorities for the D4G community in 2024. It is now my pleasure to recognize outstanding accomplishments in each of the five areas:

- **Biostatistics Challenge: Local and Community Studies.** Recognition goes to measles data and research (<https://tinyurl.com/y9hmcscp>) from the US Centers for Disease Control and Prevention, including its longitudinal data, infographics, and other resources by state.
- The **Environmental Advocacy Challenge** put a focus on threatened and endangered species due to climate change, habitat loss, and many other factors. I recognize NOAA Fisheries for its aerial surveys of arctic marine mammals (<https://tinyurl.com/bd8xwb6z>), especially its research, methods, and invaluable archive of past surveys.
- The **Data Challenge** addressed support and development of the global data ecosystem to support data for good. Recognition goes to the World Bank Group for its open data project (<https://data.worldbank.org>), which includes resources for an array of important subjects collected in a single, consistent platform with country-level data from around the world.
- **Data for Good Organization and Infrastructure:** Recognition for collaboration with industry goes to the Michigan Institute for Data and AI in Society (<https://midas.umich.edu>). Based at the University of Michigan, its conferences, events, and

Getting Involved

Opportunities this month include getting ready for JSM 2025 in Nashville, Tennessee. Abstracts for contributed sessions are due February 3. Check out the JSM website at ww2.amstat.org/meetings/jsm/2025/submissions.cfm for details. Also, D4G researchers—especially those working in the community and legislative activism space and those on the staff of academic journals—will want to make themselves aware of an update by the Declaration of Helsinki addressing research integrity and misconduct. Visit <https://tinyurl.com/3ad8js32> for information.

resources reach beyond academia to bring together university, government, and industry leaders, making it an example of cross-collaboration in data for good.

- The **Human Rights Challenge** identified ethical AI as one of the most important subjects in data for good today. Recognition goes to the National Science Foundation's AI Centers for Trustworthy and Ethical AI (<https://tinyurl.com/27d6fzhu>). Established in 2020, the institutes include centers of excellence in ethical AI in areas such as bias in AI and law and the establishment of ethical standards.

Each of us can be part of making statistical science the beating heart of AI and the engine that powers greater good. Stats4Good exists to applaud and strengthen your work, provide resources, and foster greater connectivity within the data for good community. ■

A Practicing Statistician's Plea

Gang (John) Xie, Office of Research Services and Graduate Studies, Charles Sturt University, Australia

I am writing to express my deep concerns about the current practice of statistical analysis in scientific research. As a practicing statistician, I have observed a troubling disconnect between the principles of mathematical statistics theory and the application of these principles in real-world data analysis. In essence, many statisticians are not practicing what they preach.

Random sampling from a well-defined target population and randomization in experimental studies are two of the most fundamental principles of statistics theory for any statistical inferential analysis. Random sampling is crucial for ensuring the external validity of statistical results, while randomization in experimental design safeguards internal validity by minimizing potential confounding effects, whether known or unknown. The process begins with a necessary random sample and continues with many more random samples until a reasonable sampling distribution is constructed, which is sufficient for achieving external validity. It is through the sampling distribution of sample statistics that we approach the core objective of scientific inference: distinguishing between scientific truth and falsity.

However, technical limitations—such as research populations rarely being finite and unchanging, ethnic constraint preventing randomization, nonrandom samples, missing values, violations of model assumptions (including but not limited to independence, equal variance, and normality)—any of these factors compromise the reliability and validity of statistical inference. These issues are rarely acknowledged or adequately addressed in practice, often deliberately ignored.

In the ASA President's Task Force Statement on Statistical Significance and Replicability the authors write, “*P*-values and significance tests, when properly applied and interpreted, increase the rigor of the conclusions

drawn from data.” However, they do not clarify what exactly constitutes the proper application and interpretation of these tools. I propose that, in addition to meeting any assumption conditions for a specific statistical model, statistical inference should only be considered properly applied when the following three conditions are met:

1. Random sampling is used to obtain the sample for inference.
2. Experimental units are randomized with respect to the treatment conditions of interest.
3. The study is repeated multiple times to adequately establish the sampling distribution.

In reality, it is rare to find cases where these criteria are fully satisfied, and the level of deviations is often unknown. This leads to the conclusion that most statistical inferences in real-world research are invalid either internally, externally, or—frequently—both.

On the other hand, a 2019 editorial in *The American Statistician*, “Moving to a World Beyond ‘ $p < 0.05$,’” makes a specific and necessary call to end the use of the pseudo-scientific concept of ‘statistical significance’ in statistical analysis practice. This call represents the bare minimum required to ensure good practice in statistical analysis. Therefore, I sincerely urge professional institutions such as the American Statistical Association and Royal Statistical Society to provide clear, operational, and theoretically defensible guidelines for statistical practice.

The true role of statistical analysis lies in statistically describing or characterizing quantitative evidence regarding scientific research findings and offering what-if scenarios through logically consistent

statistical modeling. The validation or justification of scientific research findings, however, is a task for the scientific method itself, not achievable through statistical inference. For example, no matter how many survey studies are conducted or how statistically rigorous (or flawed) these studies are, statistical inference alone cannot prove that certain chemicals in tobacco cause lung cell damage, thereby establishing causation between smoking and lung cancer. I therefore strongly resonate with the perspectives of R. Hubbard et al. and C. Tong, who argue in *The American Statistician* [articles “The Limited Role of Formal Statistical Inference in Scientific Inference” and “Statistical Inference Enables Bad Science; Statistical Thinking Enables Good Science,” respectively] that statistical inference has a limited role in the broader process of scientific inference. As Tong aptly put it, “Statistical inference enables bad science; statistical thinking enables good science.” This distinction highlights the need for a deeper understanding of the role and limitations of statistical tools and the importance of integrating them into a rigorous scientific framework.

As statisticians, we must collectively acknowledge that most current statistical practices do not align with the principles we teach in mathematical statistics. A hard truth that we must accept is statistical inference is built upon layers of assumptions. Yet [according to MD Higgs in her blog post “Assumptions Are Not Met. Period.”], the reality is that assumptions are not met. It is time to realign our practice with our theory, ensuring that our analyses are both scientifically sound and practically applicable. ■

Submit Proposal, Abstract to Be on JSM 2025 Program

Alexandra M. Schmidt, McGill University

JSM 2025 will take place in Nashville, Tennessee, from August 2–7. The theme chosen by ASA President-Elect Ji-Hyun Lee is “Statistics, Data Science, and AI Enriching Society.” Recently, the program committee finalized the invited program, choosing nearly 210 of the top proposals out of 340. The selected sessions cover topics including the following:

- Foundations of large language models
- Advancement of statistical methods for environmental health studies
- Progress in the use of generative AI within government
- Causal inference in dynamical systems
- New frontiers in AI
- Data science for high-dimensional tensor statistical learning

There are also panels planned such as Communication in Statistics and Data Science and Redefining Intro Statistics in the Age of AI.

Even with all those sessions, there is still room on the scientific program of one of the largest annual meetings of the statistical and data science communities for the following.

Topic-Contributed Sessions

These sessions are 110 minutes in length and consist of a collection of contributed talks and discussions (if desired) that share a common topic. There must be five presentations of 20 minutes each, with five minutes at the end for floor discussion and concluding remarks by the session chair. The deadline for submitting proposals is December 9.

Speed Sessions

Speed sessions are a popular part of JSM. They allow for an electronic poster presentation that can include video, animation, interactive statistical graphics, and dashboards. A speed session consists of 20 oral presentations of approximately four minutes, with a five-minute break after the first set of 10 talks. These short oral presentations are followed by an e-poster session, which lasts 45 minutes.

Only for speed sessions will the regular 110-minute contributed poster sessions be divided into two sessions. There will be 45 minutes for a

first group of 20 presenters, a 20-minute transition period, and then 45 minutes for the second group of 20 presenters. The program committee tries to cluster speed session posters by topic to attract a large and focused audience.

The following incentives will be offered to presenters who participate in speed sessions:

- Electronic poster boards, so there will be no additional costs associated with printing or transporting a poster
- The ability to present orally and through an electronic poster

When submitting a contributed abstract, simply select “Speed” as the subtype.

Poster Sessions

Poster sessions allow for face-to-face extended discussions with individuals or small groups. Advantages include direct feedback and the ability to display extensive graphical or tabular materials, possibly in addition to a handout. No audiovisual equipment or electricity is provided; therefore, laptops are discouraged at poster sessions.

Contributed Sessions

Nearly half of JSM sessions are contributed. Contributed paper sessions consist of seven papers with 15 minutes of presentation time for each, including the introduction of the speaker and questions. Contributed abstract submission closes February 3, 2025, and notifications about acceptance will be sent by early April 2025.

Session Chairs

Each JSM session requires a chair, who is responsible for contacting speakers with session information before JSM and introducing speakers and managing presentation time during the session. Chairing a session is a way for researchers who are new to the profession to build a professional network and get involved with JSM. To be a chair, volunteer to the program committee member of a section or society of interest.

To participate in the JSM 2025 program, submit an abstract at <https://tinyurl.com/59j7zt3b>. Contact Alexandra Schmidt, JSM program chair, at alexandra.schmidt@mcgill.ca with questions. ■



MORE ONLINE

To participate in the JSM 2025 program, submit an abstract at <https://tinyurl.com/59j7zt3b>.





2025 INTERNSHIPS

The following companies are looking for interns in 2025. If you are interested in gaining new experiences, working in a collaborative environment, or improving your programming skills, apply for one of these opportunities.

Organizations can complete our form at <https://bit.ly/3sPaNRw> to include an internship opportunity on our website. Interested students will send a letter of inquiry and résumé directly to the contact and location listed.

MORE ONLINE

View full descriptions, requirements, and application instructions for these internships on STATtr@k at <https://stattrak.amstat.org>.



Astellas Pharma

Northbrook, Illinois; Remote

Positions: 3

Type of Student: PhD candidate in statistics or a related discipline

Deadline: January 24, 2025

Full-time internships are available in the summer for 10–12 weeks. Successful candidates will work closely with a senior-level statistician and/or real-world data expert on the design and analysis of clinical trials, observational studies, epidemiology, and statistical research topics.

Apply: Send a CV, personal statement of interest, and letter of recommendation to Biostat.Intern@Astellas.com.

AstraZeneca

Gaithersburg, Maryland (primary); Durham, North Carolina; Waltham, Massachusetts

Positions: 4

Type of Student: PhD (preferred) or MS in statistics or biostatistics

Deadline: January 3, 2025

As a biostatistics intern, you will work closely with an

experienced statistician on one statistical topic from clinical trials. Topics involve statistical work in early- and late-phase drug development with applications to oncology, rare disease, cardiovascular, and respiratory areas. Interns will work to develop a project based in literature that is practical and valuable to AstraZeneca. At the end of the internship, you will be expected to present your work across AstraZeneca biometrics groups.

Contact: Andrew Garda, andrew.garda@astrazeneca.com

Apply: <https://tinyurl.com/4mchvrdp>

Bayer

Whippany, New Jersey

Positions: 5

Type of Student: Pursuing a master's or PhD degree in statistics, biostatistics, or related fields from an accredited college/university

Deadline: March 31, 2025

The selected individuals will have the opportunity to work on a research project with senior-level biostatisticians in a fast-paced environment. They may become involved

in the analysis of clinical trial data, programming, and providing support to highly knowledgeable trial statisticians and project statisticians. At the end of the internship, the intern will present their research project to the statistics department and a nonstatistical audience

Contact: hrop_usa@bayer.com

Apply: <https://tinyurl.com/5xtex7w3>

Biogen

Remote

Number of Positions: 6

Type of Student: Graduate school pursuing PhD in statistics, biostatistics, or similar

Deadline: February 28, 2025

This application is for a 12-week internship role from June–August 2025. Résumé review begins in January 2025. You will be required to read and synthesize key methodology papers, efficiently develop simulation code in R or another statistical package, and explore results in a systematic way.

Apply: <https://tinyurl.com/3uehpvke>

Collaborative Undergraduate Biostatistics Experience (CUBE)

Roanoke/Charlottesville, Virginia

Positions: 8–9

Type of Student: Undergraduate

Deadline: February 28, 2025

CUBE is an eight-week training program (June 9 – August 1, 2025) designed to give motivated, underrepresented undergraduate students in STEM the opportunity to engage in a full-time collaborative data science experience, along with related professional development activities.

Apply: https://biostat.centers.vt.edu/CUBE/how_to_apply

Daiichi Sankyo

Basking Ridge, New Jersey (remote possible, but onsite recommended)

Positions: Multiple

Type of Student: PhD (preferred) or MS candidates in statistics or biostatistics

Deadline: February 15, 2025

We are looking for multiple full-time statistics summer interns to join our organization for approximately 12 weeks. You will work closely with senior-level biostatisticians on innovative statistical methodology and/or application topics related to the design and analysis of clinical trials. At the end of the internship, you will be expected to present your work within global statistical

seminars. The ideal candidate will have a good knowledge of R and have completed at least two years of graduate-level courses.

Contact: Philip He, philip.he@daiichisankyo.com

Apply: <https://tinyurl.com/4uekuf3a>

Eli Lilly and Company

Indianapolis, Indiana

Positions: Multiple

Type of Student: Master's degree in statistics/biostatistics or MSPH with concentration in statistics/biostatistics

Deadline: January 15, 2025

Lilly internships last for 12 continuous weeks beginning in May or June. Each intern will be assigned a project affording the opportunity to actively contribute to the organization and build a comprehensive understanding of the pharmaceutical industry. Professional development and social events will be held throughout the summer. At the conclusion, each intern will present their project highlights, findings, recommendations, and general internship accomplishments to senior leaders and stakeholders.

Apply: <https://tinyurl.com/3u36rtz6>

Eli Lilly and Company

Indianapolis, Indiana

Number of Positions: Multiple

Type of Student: PhD Degree in Statistics or Biostatistics

Deadline: January 15, 2025

The internships start in either May or June and last 12 weeks. You will have an opportunity to gain technical expertise and contribute to cutting-edge research. You will understand the patient and business needs and then design, execute, and analyze clinical and other studies. Your creativity and leadership are essential elements of bringing better solutions in our drug discovery and development. Within Lilly's culture that values analytics and data-driven decisions, you will be part of a team that makes important contributions to our patients' lives.

If you require an accommodation to submit a résumé for a position at Lilly, please complete the accommodation request form (<https://careers.lilly.com/us/en/workplace-accommodation>).

Apply: <https://tinyurl.com/5cy8ds8d>

GEMS at Memorial Sloan Kettering Cancer Center

New York, New York

Positions: 6

Type of Student: Graduate, master's

Deadline: January 21, 2025, at 5 p.m. ET

This full-time, on-campus research experience allows students to fully engage with mentors and a multidisciplinary research team on cutting-edge projects with the goal of propelling them into genomics-oriented data science careers. Each fellow will have

two mentors to provide a highly interdisciplinary and immersive training environment and will prepare students for the interdisciplinary translational science workforce.

Contact: Richard Koppenaal, koppenar@mskcc.org

Apply: <https://tinyurl.com/49u72wxr>

GSK

Collegeville, Pennsylvania; Remote

Positions: 1

Type of Student: PhD

Deadline: March 3, 2025

Interns will develop their statistical knowledge and skills through hands-on experience working with real data and collaborating with other statisticians and GSK scientists to address drug discovery questions in pre-clinical research. Potential statistical topics include experimental design, mixed models, machine learning algorithms, linear and nonlinear regression, Bayesian methods, missing data methods, and analysis of high-dimensional data.

Contact: jacob.l.parsons@gsk.com

Apply: www.gsk.com/en-gb/careers/search-jobs

Johnson & Johnson

Spring House, Pennsylvania; Titusville, New Jersey; Raritan, New Jersey; La Jolla, California

Positions: 8

Type of Student: PhD, master's, bachelor's

Deadline: February 15, 2025

Students will be involved in activities such as supporting research and development in areas that range from drug discovery through phase 2 and 3 clinical studies and, concurrently, pharmaceutical manufacturing, including data preparation, graphical exploration of data, statistical model-building and analyses, report writing, and writing of computer programs or applications associated with statistical evaluations. Other activities may include designing experiments, conducting simulations to evaluate optimal designs, and participating in methodological development.

Apply: Go to <https://careers.jnj.com> and enter keywords such as "biostatistics intern" and "statistics decision sciences intern"

Novartis Pharmaceutical Corporation

East Hanover, New Jersey; Cambridge, Massachusetts; hybrid

Positions: Multiple

Type of Student: PhD candidates who will have completed at least 1.5 years of course work by June 2025

Deadline: January 19, 2025

Interns will work on quantitative projects (statistics, data science/machine learning, or pharmacometrics) under the guidance of experienced quantitative scientists. Various real-world problems will give interns hands-on exposure to the early and late phases of drug development across different therapeutic areas. Interns will also attend seminars and other enrichment and learning activities to enhance their understanding of the drug development process and present their project results to quantitative scientists and other key stakeholders.

Apply: <https://tinyurl.com/4hnknm88>

NYU GPH | Department of Biostatistics: Pathways into Quantitative Aging Research Summer Program

New York, New York

Positions: 12

Type of Student: Undergraduate

Deadline: February 3, 2025

Participants in the Pathways into Quantitative Aging Research summer program will have an intensive schedule of courses, seminars, and research, with enough free time to explore New York City on the weekends. For six weeks during the summer, students will receive instruction on quantitative and qualitative research methods, responsible conduct of research training, and GRE prep.

Contact: Vardia Duterville,
gph.pathways@nyu.edu

Apply: <https://tinyurl.com/mukxbxmj>

Pfizer

La Jolla, California; San Francisco, California; Boulder, Colorado; Groton, Connecticut; Collegeville, Pennsylvania; Cambridge, Massachusetts; New York, New York; Andover, Massachusetts; Pearl River, New York; Bothell, Washington

Positions: Multiple

Type of Student: Graduate

Deadline: January 31, 2025

The internship will consist of up to 480 hours of work, commencing as early as May and ending as late as September. The intern's project will be biomedically oriented, with one-on-one supervision by one or multiple senior staff statisticians. The work will be a hands-on learning experience focusing on current project needs and likely involve use of SAS, R, or other statistical software. The intern will prepare a written report and brief presentation summarizing the work and forming a permanent record of the intern's efforts.

Apply: <https://tinyurl.com/pc2swfcr>

QSURE at Memorial Sloan Kettering Cancer Center

New York, New York

Positions: 10

Type of Student:

Undergraduate

Deadline: January 18, 2025

The QSURE internship is a 10-week summer program designed for motivated undergraduate students with a passion for quantitative science. Each student will be paired with an expert mentor to work on an individual, data-driven research project that aims to answer pressing questions in cancer. The program will provide hands-on skills in biostatistics, epidemiology, health outcomes, and/or computational oncology.

Contact: Richard Koppenaal,
koppenar@mskcc.org

Apply: <https://mskcc.org/qsure>

Regeneron Pharmaceuticals

Basking Ridge, New Jersey;
Tarrytown, New York

Positions: Multiple

Type of Student:

Undergraduate and Graduate

Deadline: December 20, 2024

A typical summer might include the following:

- Achieving a general understanding of what happens in our global organization
- Completing hands-on project work that has an impact on the business

- Engaging with Regeneron leadership
- Collaborating with a specific hiring manager and other interns
- Establishing connections with Regeneron's diverse set of employee resource groups
- Participating in professional development sessions while enjoying lots of free food and swag
- Showcasing the knowledge you gained through end-of-program presentation sessions
- Getting paid for your hard work

Contact: grace.tarduogno@regeneron.com

Apply: <https://careers.regeneron.com/en>

Sanofi

New Jersey; Massachusetts;
Remote

Positions: Multiple

Type of Student: PhD

Deadline: March 1, 2025

Successful candidates will work on design and analysis of early- and late-phase clinical trials and statistical methodology research under the supervision of senior-level statisticians.

Candidates must have completed at least two years of graduate coursework and be working on a dissertation toward a PhD in statistics or biostatistics. Requirements include effective oral and

written communication skills and knowledge of SAS and R. Python is a plus.

Contact: Email CV and (un) official graduate transcript to Xiaodong Luo at xiaodong.luo@sanofi.com.

St. Jude Children's Research Hospital

Memphis, Tennessee

Positions: Multiple

Type of Student: Undergraduate and graduate

Deadline: January 10, 2025

During this experiential and immersive program, you will develop and hone your practical skills in a broad range of areas including the following:

- Processing, analysis, and presentation of data
- Design of data collection instruments and data management systems
- Statistical techniques
- Reporting and interpretation of results and explanations
- Software, statistical methodologies, and statistical writing through real-world applications

Contact: BiostatIntern@STJUDE.ORG

Apply: <https://tinyurl.com/2d7nxbkk>

StataCorp

College Station, Texas

Positions: 1–3

Type of Student: Graduate

Deadline: February 28, 2025

StataCorp's summer internships offer students the opportunity to learn the inner workings of statistical software development by working closely with StataCorp's professional staff. Job duties may include learning how to use and program in Stata, collaborating on projects suitable for publication in Stata Journal, creating support materials, and assisting in adding new statistical features to Stata, along with testing and documenting those features.

Apply: www.stata.com/internships

Takeda Pharmaceuticals

Cambridge, Massachusetts; Virtual; Hybrid

Positions: Multiple

Type of Student: PhD or master's candidates in biostatistics, statistics, or related disciplines

Deadline: February 28, 2025

During the 12-week summer internship program in the statistical and quantitative science department, interns will work closely with experienced industry statisticians/data scientists/programmers on a variety of topics related to design and analysis of clinical trials, preclinical research, and/or programming related projects.

Apply: Email your résumé and cover letter to biostatistics.intern@takeda.com.

The Lubrizol Corporation

Wickliffe, Ohio; Remote

Positions: 4

Type of Student: MS/PhD

Deadline: March 1, 2025

Potential projects (depending on intern skills and current Lubrizol needs) include the following:

- Create predictive models by mining complex data for critical formulating or testing insights
- Implement and assess algorithms in R, Python, SAS, JMP, or C#/C++
- Research, develop, and operationalize new statistical, machine learning, and/or optimization methods (PhD level)
- Collaborate with data science team, as well as scientists and engineers, to understand their needs and find creative solutions to meet those needs

Contact: Kevin Manouchehri, kevin.manouchehri@lubrizol.com

Apply: <https://tinyurl.com/4za6t2fn>

The Lubrizol Corporation

Wickliffe, Ohio; Remote

Positions: 4

Type of Student: Bachelor's

Deadline: March 1, 2025

Potential projects (depending on intern skills and current Lubrizol needs) include the following:

- Create predictive models by mining complex data for critical formulating or testing insights
- Implement and assess algorithms in R, Python, SAS, JMP, or C#/C++
- Collaborate with data science team, as well as scientists and engineers, to understand their needs and find creative solutions to meet those needs

Contact: Kevin Manouchehri, kevin.manouchehri@lubrizol.com

Apply: <https://tinyurl.com/yc64swax>

Thomas Jefferson University Division of Biostatistics and Bioinformatics

Philadelphia, Pennsylvania

Positions: 3

Type of Student:

Undergraduate (junior or senior preferred), master's

Deadline: February 14, 2025

- Biostatistics interns will review statistical topics relevant to biomedical research; analyze real-world biomedical data; interpret the statistical results using SAS, R, and other languages; and communicate their work through written reports and oral presentations.
- Bioinformatics interns will work on cutting-edge areas of bioinformatics, including

single-cell omics data analysis, machine learning, and systems biology approaches.

- Intern students will receive guidance and mentoring regarding their future studies and career trajectory.

Contact: Tingting Zhan, tingting.zhan@jefferson.edu

Apply: https://jeffline.jefferson.edu/education/programs/biostatistics_si

University of Pennsylvania

Philadelphia, Pennsylvania

Positions: Multiple

Type of Student:

Undergraduate

Deadline: February 1, 2025

The Summer Undergraduate Internship Program and Summer Undergraduate Minority Research program at the University of Pennsylvania are accepting applications for undergraduate students to participate in summer research.

SUIP is designed to provide an intense research experience to students interested in graduate study in the biomedical sciences, including biostatistics. Each intern is matched with a faculty mentor and participate in the investigator's ongoing research. This 10-week program runs from early June to mid-August.

Application details: www.med.upenn.edu/idealresearch/suip

SUMR is open to rising undergraduate sophomores, juniors, and seniors. Scholars work with a Penn faculty member on a health services project, gain practical advice about graduate school opportunities—including GRE preparation—and attend a health services-related research conference. The program will run for 12 weeks from the end of May to mid-August.

Application details: <https://tinyurl.com/49wcptkk>

Contact: Eli Elliott, eli.elliott@pennmedicine.upenn.edu

University of Texas Medical Branch Summer Institute in Biostatistics and Data Science

Galveston, Texas

Positions: 20

Type of Student:

Undergraduate student majoring in mathematics, statistics, biology, or other health science

Deadline: April 15, 2025

Students will earn college credit for a course in biostatistics, learn statistical software packages, attend seminars on biostatistical topics and research, participate in professional development workshops, and take part in a collaborative research project with other students mentored by faculty members both in basic science/clinical research and biostatistics. At the annual symposium, students will prepare and deliver a polished poster presentation that reports on their research.

Contact: Heidi Spratt,
hespratt@utmb.edu

Website: <https://tinyurl.com/7cphh6k3>

US Food and Drug Administration Center for Drug Evaluation and Research Office of Translational Sciences Office of Biostatistics

Silver Spring, Maryland; Hybrid; Remote

Positions: Multiple

Type of Student: Graduate students with strong background coursework in biostatistics or statistics; completion of doctoral prequalifying exams preferred.

Deadline: April 15, 2025

Interns will gain hands-on experience with regulatory research projects under the guidance of an expert Office of Biostatistics mentor, using real or simulated data to address statistical problems in a stimulating, collaborative, and supportive environment. Past research project areas have included modeling and simulation, missing data, noninferiority trials, multiple endpoints, adaptive designs, Bayesian design and analysis methods, estimands, meta-analyses, benefit-risk analyses, subgroup analyses, biosimilars, patient experience data, bioequivalence, quality control, cardiac safety, and data mining.

Send questions to CDER-OTS-OB-Recruitment@fda.hhs.gov with QUESTION ORISE 2025 as the subject.

Apply: www.zintellect.com/Opportunity/Details/FDA-CDER-2025-0000

Vanderbilt University Medical Center Department of Biostatistics

Nashville, Tennessee

Positions: 6

Type of Student: Undergraduates from underrepresented groups in biostatistics

Deadline: January 31, 2025

Interns are directly mentored by experienced researchers as they gain valuable experience in the biostatistics field. They will work on a research project, complete weekly assignments, and deliver a formal oral presentation at the end of the summer program. There will also be opportunities for discussion and training on topics such as writing abstracts, personal statements, and résumés.

Website: www.vumc.org/biostatistics/vbsiuu

Vertex Pharmaceuticals

Boston, Massachusetts

Positions: 3

Type of Student: PhD

Deadline: December 6, 2024

- Explore statistical methodology relating to a particular area assigned by a manager
- Perform simulation studies
- Analyze clinical study data and interpret the results for a cross-functional team
- Build R programs and (possibly an R shiny app) and conduct analyses in SAS
- Present research results and learning to the biostatistics department and broader audience at departmental seminars and/or company poster sessions
- Summarize the work for future departmental use and potentially produce a peer-reviewed publication
- Attend seminars and other company activities to enhance the understanding of the drug development process and daily work of biostatisticians in a biotechnology company

Contact: glen_laird@vrtx.com

Website: www.vrtx.com



PRACTICAL SIGNIFICANCE
AMERICAN STATISTICAL ASSOCIATION

Tune In

to the latest episode of
the *Practical Significance*
podcast with hosts
Ron Wasserstein and
Donna LaLonde



Ron Wasserstein



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<https://magazine.amstat.org/podcast-2>



WashU Medicine Institute for Informatics, Data Science, and Biostatistics

St. Louis, Missouri

Positions: 15

Type of Student:

Undergraduate and graduate

Deadline: January 15, 2025

As a BIDS@I2DB intern, you will
do the following:

- Work within the lab of an I2DB faculty member and participate in research in progress
- Receive biomedical informatics and data science training
- Participate in interdisciplinary, weekly lab meetings
- Attend weekly seminars
- Collaborate with fellow interns, faculty, and staff on projects and research
- Attend I2DB retreat and present summer research
- Create a scientific poster for a culminating event for the WUSM community
- Experience a broad range of biomedical informatics and data science research methods, technology, and theories

Contact: Giulina Sertl,
Admissions Recruiter, gsertl@wustl.edu

Apply: <https://tinyurl.com/3muwz82m>

Weill Cornell Medicine

Remote

Positions: 2–3

Type of Student: PhD

Deadline: March 31, 2025

As a biostatistics intern, you will work closely with the principal investigator and other Mallick Lab members on projects in multi-omics integration and omics data science. Activities may include conducting large-scale simulations, participating in methodological development, performing exploratory data analysis, creating graphical data visualizations, writing reports, and developing computer programs or software applications associated with statistical analyses. Interns often have the opportunity to summarize their work in a peer-reviewed publication.

Apply: Send your CV and a personal statement of interest to him4004@med.cornell.edu. ■

EDGE Summer Program

The EDGE Foundation is accepting applications for the EDGE Summer Program, a four-week, residential session designed to prepare women and gender nonconforming individuals to thrive in their mathematical sciences PhD programs. The 2025 EDGE Summer Program will be held June 1–28, 2025, at the University of Tennessee, Knoxville.

Program activities include the following:

- Four core workshops in courses such as algebra, analysis, measure theory, and machine learning
- Daily collaborative problem sessions with advanced graduate student mentors
- Regular office hours and highly personalized feedback from facilitators
- Weekly colloquium on a variety of research topics
- Special discussions on equity and identity in mathematics, teaching practices, and other professional development skills

The EDGE Foundation will cover all travel, room, and board expenses related to the program, and participants will receive a modest stipend.

Applicants should be women or gender nonconforming individuals who are applying to PhD programs in the mathematical sciences or just completed their first year in a PhD program in the mathematical sciences. Students from underrepresented minority groups are encouraged to apply.

Apply through MathPrograms at www.mathprograms.org/db/programs/1670 by February 14,

2025. For more information, visit www.edgeforwomen.org/summer-session or send questions to edgestaff@edgeforwomen.org. ■

Postdoctoral Research Program

The US Census Bureau offers a postdoctoral research program that provides postdoctoral candidates opportunities for research on subjects compatible with bureau interests.

Postdoctoral research positions are awarded to those in the process of earning a doctoral degree at the time of application or who have held a doctorate for fewer than six years.

Awardees are offered two-year appointments and are temporary bureau employees. The research positions are not intended to be or compete with permanent professional positions, and an evaluation is conducted after one year to ensure postdoctoral researchers are making suitable progress.

Submit your application to the US Census Bureau by January 31, 2025, at <https://bit.ly/3tP8MbT>. ■

Chambers Software Award

Submissions are being accepted until December 15 for the John M. Chambers Statistical Software Award, cosponsored by the ASA Statistical Computing and Statistical Graphics sections.

This annual prize for statistical software written by, or in collaboration with, an undergraduate or graduate student carries a cash award of \$2,000. Both individuals and teams are eligible to participate, but the individual or at least one individual

in the team must have begun the development while a student and either be a student or have completed all requirements for their last degree within the calendar year.

The award will be given to the winning individual or split between up to three winning team members.

Submit nominations at <https://tinyurl.com/4jp4hwh5>. Email questions about the award to Philip Waggoner at philip.waggoner@gmail.com. ■

Noether Early Career Scholar Award

The Noether Early Career Scholar Award is given each year to an accomplished young researcher to foster, encourage, and support both research and teaching in nonparametric statistics. The honoree is presented with \$2,500 and delivers a lecture at the Joint Statistical Meetings the year of their award.

Nominations require the following:

- Nomination letter
- Candidate's CV
- Three letters of support (not to exceed two pages each)
- Candidate's short bio
- Candidate's headshot

Nominations are due January 15. To submit nominations, visit <https://tinyurl.com/39x95mzh>. ■

2025 Deadlines

for Select ASA National Awards, Special Lectureships, and COPSS Awards

The ASA's extensive awards program recognizes statisticians who have made outstanding contributions to the association and statistical profession through research, teaching, consulting, and service.

**Monroe G. Sirken Award
in Interdisciplinary Survey
Methods Research**
Deadline: December 20

Gottfried E. Noether Awards
Deadline: January 15, 2025

Bob Riffenburgh Award
Deadline: January 15, 2025

Karl E. Peace Award
Deadline: February 1, 2025

**W. J. Dixon Award
for Excellence in
Statistical Consulting**
Deadline: February 15, 2025

**Harry V. Roberts Statistical
Advocate of the Year Award**
Deadline: February 15, 2025

Waller Awards
Deadline: February 15, 2025

**Samuel S. Wilks
Memorial Award**
Deadline: February 15, 2025

**W. J. Youden Award in
Interlaboratory Testing**
Deadline: February 15, 2025

**Statistics in Physical
Engineering Sciences Award**
Deadline: February 20, 2025

Gertrude M. Cox Scholarship
Deadline: February 23, 2025

**Edward C. Bryant
Scholarship**
Deadline: March 1, 2025

**Excellence in Statistical
Reporting Award**
Deadline: March 1, 2025

Fellows of the ASA
Deadline: March 1, 2025

ASA Mentoring Award
Deadline: March 1, 2025

**Outstanding Statistical
Application Award**
Deadline: March 1, 2025

**Statistical Partnerships
Among Academe, Industry,
and Government (SPAIG)
Award**
Deadline: March 1, 2025

**Annie T. Randall
Innovator Award**
Deadline: March 15, 2025

**Biopharmaceutical Section
Scholarship Award**
Deadline: March 15, 2025

Founders Award
Deadline: March 15, 2025

ASA Pride Scholarship
Deadline: March 31, 2025

**Causality in Statistics
Education Award**
Deadline: April 5, 2025

**Government Statistics
Section Wray Jackson
Smith Scholarship**
Deadline: May 1, 2025

**Norman Beery
Memorial Scholarship**
Deadline: July 1, 2025



Visit the ASA website to
view a comprehensive list of
awards and scholarships.
<https://bit.ly/46X9sLm>

Links Lecture Award
Deadline: July 1, 2025

**Dorothy Marie Lamb
and Annette Lila Ryne
Memorial Scholarship**
Deadline: July 15, 2025

**Health Policy Statistics Section
Achievement Awards**
Deadline: September 15, 2025

Deming Lecturer Award
Deadline: October 15, 2025

Questions about these awards may
be sent to awards@amstat.org. ■

ASA members **Bin Yu** of the University of California, Berkeley and **Rebecca Barter** of Utah University Medical School released the print version of their new book *Veridical Data Science: The Practice of Responsible Data Analysis and Decision Making* via MIT Press.

The book demonstrates how to use the principles of predictability, computability, and stability to create and evaluate trustworthy data-driven results by conducting stress tests at every stage of the data science life cycle—from problem formulation and data cleaning to modeling and communicating results.

Veridical Data Science arose from the graduate statistics class Yu has taught for many years at Berkeley and evolved to embody her research philosophy. It is a resource for data science, statistics, and applied machine learning classes as one of the textbooks or supplementary reading. It is intended for upper-division and beginning graduate students, as well as for domain scientists entering data science.

The open-access version of their book can be found at <https://vdsbook.com>. A print version is available at <https://mitpress.mit.edu/9780262049191/veridical-data-science>. ■

Eugenia Cheng was recently honored with the 2025 Joint Policy Board for Mathematics Communications Award “for her remarkable work bringing mathematics, mathematical ideas, and mathematical art to a wide audience through a multitude of books and other media,” according to the prize citation.

Cheng, a scientist in residence at the School of the Art Institute of Chicago, won tenure in pure mathematics at the

University in Sheffield and holds a PhD in pure mathematics from the University of Cambridge. She was an early pioneer of math on YouTube and has written eight math books, including *Beyond Infinity*, which was shortlisted for the Royal Society Science Book Prize; *Is Math Real?*, which won the 2024 *LA Times* Book Prize for Science and Technology; and two children’s books. She has given talks and interviews around the world, including for the BBC, NPR, and *The Late Show with Stephen Colbert*. She wrote the Everyday Math column for *The Wall Street Journal* for seven years and has completed several art and song commissions, including one for a GRAMMY-nominated album.

The Joint Policy Board for Mathematics Communications Award was established in 1988 and is given annually to reward and encourage communicators who, on a sustained basis, bring mathematical ideas and information to nonmathematical audiences. The current prize amount is \$2,000, and up to two awards are made annually. The board is a collaborative effort of the American Mathematical Society, American Statistical Association, Mathematical Association of America, and Society for Industrial and Applied Mathematics.

The award will be presented at the 2025 Joint Mathematics Meetings in Seattle, Washington.

Visit the American Mathematical Society website at www.ams.org/news?news_id=7369 to read more about Cheng. ■

Sally C. Morton was recently elected to the National Academy of Medicine. Morton, who is executive vice president of Knowledge Enterprise and professor of statistics at Arizona State University, Tempe was

selected for preeminent leadership in statistics, health policy, and science in both academic and nonprofit research institutions. She was also elected for excellence in evidence synthesis of clinical and public health issues and impactful methodology in patient-centered comparative effectiveness research. Her contributions to clinical practice guidelines and health care interventions have reduced morbidity and mortality.

“This class of new members represents the most exceptional researchers and leaders in health and medicine, who have made significant breakthroughs, led the response to major public health challenges, and advanced health equity,” said National Academy of Medicine President Victor J. Dzau. “Their expertise will be necessary to supporting NAM’s work to address the pressing health and scientific challenges we face today. It is my privilege to welcome these esteemed individuals to the National Academy of Medicine.”

The academy elected 90 regular members and 10 international members during its annual meeting. Election to the academy is considered one of the highest honors in the health and medicine fields.

For more information, visit <https://tinyurl.com/2k4btemt>. ■

The 2024 winners of the Caucus for Women in Statistics and Data Science’s Woodroffe Award are **Yao Xie** of Georgia Tech and **Yang Chen** of the University of Michigan, who were presented the award during the International Day of Women in Statistics and Data Science program. There will be an invited session in their honor at 2025 Joint Statistical Meetings in Nashville, Tennessee, and the

2026 International Workshop in Sequential Methodologies in Washington, DC.

Xie was honored with the Woodroffe Award for her innovative methods in statistical learning and the significant strides she has made in sequential analysis and change-point detection. Her work tackles real-world challenges by developing advanced algorithms for big data problems, including sparse changes in high-dimensional data and spatiotemporal modeling. Notably, her methods have been successfully applied to enhance crime data analysis and optimize police zone designs, demonstrating profound societal impact. Xie's research combines rigorous statistical theory with practical applications, making her a standout in the statistics and data science fields.

Chen was recognized for her cutting-edge work in statistical learning, particularly within space science and astrophysics. Her innovative methodologies address the complexities of big data challenges, including developing advanced techniques for data-driven space, weather predictions, and high-resolution solar imaging. She has contributed to practical applications in managing vast data streams from space-borne telescopes. Chen's methods are also at the forefront of addressing critical data-analytic challenges, showcasing a blend of theoretical insight and impactful real-world applications.

The Woodroffe Award was founded by Dong-Yun Kim in 2023 to honor Michael Woodroffe and women who have made significant contributions to solve real-world

problems by applying novel or existing theories. To learn more about the award, visit <https://cwstat.org/michael-woodroffe-award>. ■

In Memorium Meijing Wu

It is with deep sadness that we share the news that Meijing Wu, editor and chair of the *Biopharm Report*, passed away recently.

She leaves behind her husband, son, siblings, and parents. Read the tribute to Wu in the *Bedford Citizen* at <https://tinyurl.com/3zfhycxz>.



TEXAS A&M UNIVERSITY

Statistics



Dr. Christian Genest, a Canadian statistician known for his pioneering work in copula modeling and extreme-value theory, has been named the recipient of the Emanuel and Carol Parzen Prize for Statistical Innovation. This prestigious award, established by Texas A&M University's Department of Statistics, honors trailblazers in the field whose work has significantly advanced statistical innovation, bridging theoretical and practical applications. The award reflects Professor Parzen's vision of strengthening the discipline's societal impact by celebrating statisticians who balance rigorous theoretical research with influential, real-world applications—a mission he championed since founding the prize in 1994. Previous recipients of this esteemed award include Grace Wahba, Donald B. Rubin, Bradley Efron, C. R. Rao, David R. Brillinger, Nancy Reid, Bin Yu, and Herman Chernoff, among others.

A PhD graduate from the University of British Columbia, Dr. Genest has published nearly 200 peer-reviewed research articles and has delivered hundreds of lectures across 20 countries, sharing insights on dependence modeling, extreme-value theory, multivariate analysis, and nonparametric statistics. His remarkable contributions have found practical applications in numerous fields, including finance, insurance, risk management, and environmental science. Among his many accolades, he received the Statistical Society of Canada's Gold Medal for outstanding contributions to research, and the CRM-Fields-PIMS Prize recognizing exceptional achievement in the mathematical sciences. He is a Fellow of the Royal Society of Canada, the American Statistical Association, and several other prestigious institutions.

Dr. Genest's achievements extend beyond research. He has served, among others, as Interim Chair of his department, President of the Statistical Society of Canada, Director of the Institut des sciences mathématiques du Québec, and Editor-in-Chief of two prominent statistical journals. His work embodies the balance between core research and outreach that the Parzen Prize seeks to celebrate.

Four Ohio State Biostats Faculty Earn Promotions



From left: Biostatistics faculty Patrick Schnell, James Odei, Rebecca Andridge, and Michael Pennell from The Ohio State University College of Public Health are honored during a faculty promotions event in October.

Rebecca Andridge, Michael Pennell, Patrick Schnell, and James Odei—faculty from The Ohio State University College of Public Health Division of Biostatistics—were recently promoted and honored during a special event on October 9.

Rebecca Andridge, promoted to professor, is an American Statistical Association Fellow

and recipient of the college's Excellence in Teaching Award. She collaborates with researchers across campus—including faculty in the Institute for Behavioral Medicine Research, Nisonger Center for Excellence in Developmental Disabilities, and Ohio State's Comprehensive Cancer Center—and serves as lead methodologist for several state-sponsored population-

based surveys. She also was named associate dean for undergraduate studies for the college of public health.

Michael Pennell, promoted to professor, has taught and conducted research in the division of biostatistics since 2006 and is a recipient of the college's Excellence in Teaching Award. His research interests include nonparametric Bayesian models; first-hitting time models for survival analysis; design and analysis of group randomized trials; joint modeling outcomes of different scales; statistical methods in toxicological risk assessment; and statistical applications in biomedical research, including cancer control, pathology, and veterinary medicine.

Patrick Schnell, promoted to associate professor with tenure, is an educator and researcher who analyzes cancer risk, treatment, and survivorship, as well as internal medicine, nutrition, and psychiatry. His expertise focuses on causal inference and Bayesian hierarchical and linear mixed effects models. His 2023 paper on COVID-19 testing—"Overcoming Repeated Testing Schedule Bias in Estimates of Disease Prevalence" (<https://tinyurl.com/mwjzxc5t>)—was selected for the ASA editors' choice collection.

James Odei—promoted to clinical associate professor—uses spatial, temporal, spatiotemporal modeling using Bayesian methods, and hierarchical modeling and applications to address ecology and health challenges.

For information about The Ohio State College of Public Health Division of Biostatistics, visit <https://cph.osu.edu/biostatistics>. ■

SRMS Revisits JSM, Offers Benefits

During the 2024 Joint Statistical Meetings, the Survey Research Methods Section sponsored or cosponsored four invited paper sessions, nine topic-contributed paper sessions, 10 contributed paper sessions, seven contributed speed presentations, five contributed posters, and two roundtable discussions.

The section also increased the number of student travel awards it gives to six, and members of the executive committee organized a lunch meeting with the awardees at JSM, aiming to foster connections between students and senior section members and build long-term mentor/mentee relationships.

Also at JSM, the section business meeting took place August 7. Those in attendance reviewed the year's activities and discussed upcoming roles. Visit the section newsletter at <https://tinyurl.com/3p63k2av> for details.

Member Benefits

Section members have free access to American Association for Public Opinion Research webinars from 2016–2022. Visit <https://tinyurl.com/y6hdyu2y> for more information and email Brady West at bwest@umich.edu to access any of the webinars.

The section made electronic copies of the *Journal of Survey Statistics and Methodology* available to all members for free.

Susan Murphy Wins Boston Chapter's Top Award

Wenting Cheng, Chapter President; Olga Vitek Chapter Past President; and Tom Lane, Chapter Treasurer

The Boston Chapter marks the 35th anniversary of the Mosteller Statistician of the Year Award this year. Since 1990, this annual award has recognized a distinguished statistician who has made exceptional contributions to the statistics field through research, teaching, and service to the statistical community, especially including service to the Boston Chapter.

Susan A. Murphy, Mallinckrodt Professor of Statistics and Computer Science and associate faculty at the Kempner Institute of Harvard University, was honored with the award this year. She was recognized for her groundbreaking research, which focuses on improving sequential decision-making in health—currently in online, real-time learning algorithms for developing personalized digital health interventions.

Murphy is a member of the US National Academy of Sciences and US National Academy of Medicine. She is also a fellow of the college on problems in drug dependence. In 2013, she was awarded a MacArthur Fellowship for her work on experimental designs to inform sequential decision-making. She made an impact on the real-world practice of clinical trials in medical and behavior science through her research, as well as through her efforts to promote adaptive interventions.

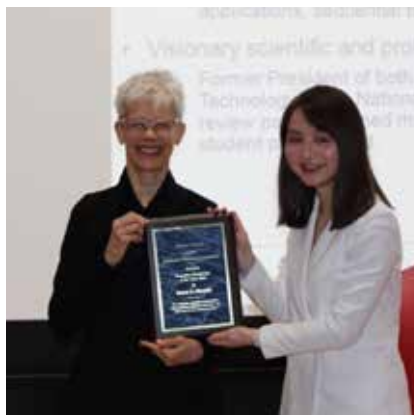
Murphy's service to the professional community is equally commendable. Her leadership as the former president of both the Institute for Mathematical Statistics and Bernoulli Society, former editor of *Annals of Statistics*, and former chair of the National Academy of Medicine Interest Group on Health and Technology highlights her longtime dedication to the field. She has served on many committees and review panels and trained a number of students and postdocs, many of whom have achieved faculty positions in leading statistics departments and received student paper awards.

The Boston Chapter held an evening reception April 12 at the Harvard University Science and Engineering Complex to celebrate the award. The reception began with a dinner that gathered the awardee and members of the Boston Chapter community, as well as Murphy's colleagues, students, and postdocs.

After the dinner, Chapter President Wenting Cheng introduced the chapter and told the award's



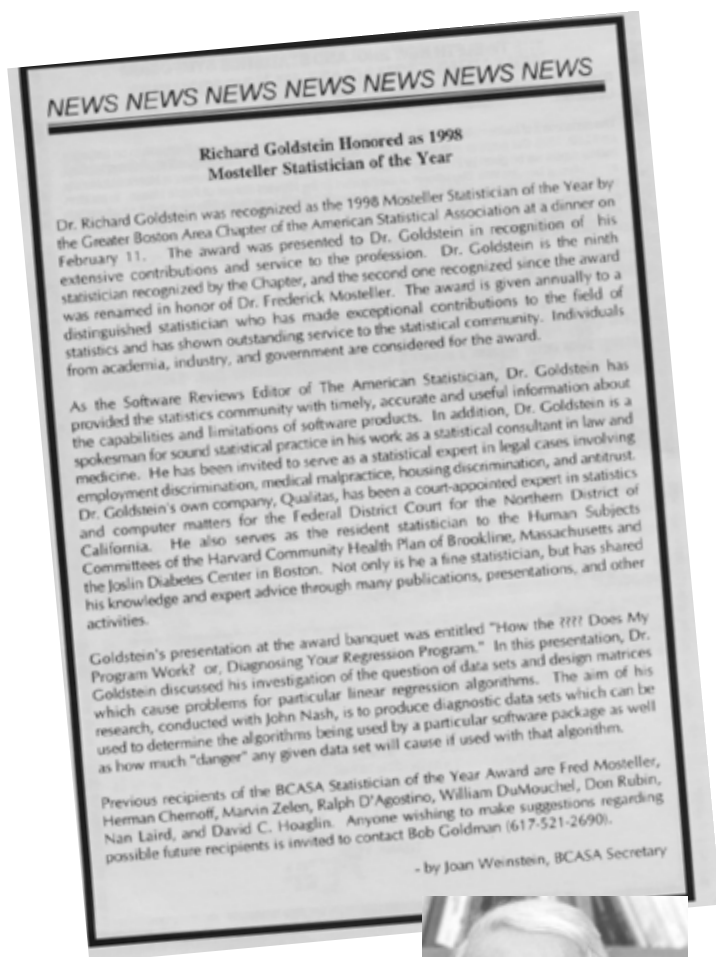
Boston Chapter officers with Susan Murphy. From left: Olga Vitek (chapter past president), Susan Murphy (2024 Mosteller Statistician of the Year award-ee), Wenting Cheng (chapter president), Jianchang Lin (chapter president-elect), Lisa Mukherjee (a past chapter treasurer), and Maureen Mayer (chapter Council of Chapters representative-elect)



Boston Chapter President Wenting Cheng (right) presents the 2024 Mosteller Statistician of the Year Award to Susan Murphy.

Susan Murphy (first row, middle) and her students and postdocs at the Mosteller award reception





A copy of the March 1998 Boston Chapter newsletter



Frederick Mosteller

Statistician of the Year Award: Its History

The Statistician of the Year Award was presented for the first time on December 9, 1989, to Charles Frederick Mosteller, then Harvard's Lee Professor of Mathematical Statistics emeritus. On the eve of the inaugural award reception, the *Harvard Crimson* celebrated Mosteller with the article "Harvard Statistician Wins Prize – Frederick Mosteller Called 'Greatest Living Bio-Statistician,'" noting Mosteller's profound influence on the statistical field. The article quoted Jimmy Thomas Efrid, then secretary of the Boston Chapter, who mentioned the award "is mostly to honor him [Mosteller] and show the recognition of his peers."

In 1997, to commemorate Frederick Mosteller's 80th birthday, the award was renamed in his honor. David Hoaglin was the first honoree to be recognized after the renaming. The following year, the March chapter newsletter announced Richard Goldstein as the recipient of the Mosteller Award and recognized the award's previous recipients.

Frederick Mosteller's Contribution to Statistics

Mosteller (December 24, 1916 – July 23, 2006) is regarded by some as one of the most influential statisticians of the 20th century. He was the founding chair of the Harvard Department of Statistics from 1957–1971, chair of the biostatistics department in the Harvard school of public health from 1977–1981, and chair of the health policy and management department in the Harvard school of public health from 1981–1987.

Mosteller's leadership expanded far beyond his institution. He was a former president of the ASA (1967) and Institute for Mathematical Statistics (1974–1975), as well as president of the ASA Boston Chapter. He was also the only statistician to have served as president of the American Association for the Advancement of Science (1980).

Mosteller wrote 57 books, 365 papers in books and journals, and 60 other publications, many of which are classics. For example, his collaboration with David Wallace applied statistical analyses to solve the authorship puzzle of the anonymous *Federalist Papers*. Among his many achievements in statistics education, he wrote several teaching manuals and textbooks, including *Probability: A First Course* and *Probability with Statistical Applications*. He also taught a statistics class on "Continental Classroom – Mathematics" on NBC. ■

history. Xihong Lin—honored with the Mosteller Statistician of the Year Award in 2021—highlighted some of Murphy's most impactful contributions and shared personal insights from her interactions with Murphy.

Murphy's presentation, titled "Online Reinforcement Learning in Digital Health Interventions," showcased her research on developing data analytic methods, particularly online reinforcement learning methods, for personalized digital health interventions. She discussed two examples of clinical trials involving digital health care apps: HeartSteps and Oralytics. This talk provided attendees with a deeper understanding of how Murphy's integration of artificial intelligence with statistical methods is transforming health care interventions and advancing its future.

MORE ONLINE
To view the list of past Mosteller awardees, visit <https://tinyurl.com/5eaer7af>



Connecticut

■ The Department of Allied Health Sciences (AHS) in the College of Agriculture, Health, and Natural Resources (CAHNR) at the University of Connecticut invites applications for a faculty appointment as AHS Assistant Professor of Quantitative Methodology in Behavioral Trials. This is a full-time, 9-month, tenure-track appointment with an expected start date of August 23, 2025. Link to Apply: <https://tinyurl.com/5n8x5fry>. The University of Connecticut is an AA/EEO Employer.

Massachusetts

■ The Department of Health Care Policy at Harvard Medical School seeks a Postdoctoral Fellow to conduct methodological research in causal inference with applications to assessing healthcare quality in congenital heart surgery or in geriatric psychiatry; work with multidisciplinary team; and collaborate on applied papers. PhD in statistics/biostatistics with training in causal or Bayesian inference, item response theory modeling ideal; administrative claims data experience a plus. Application Instructions: Send: (a) cover letter; (b) CV; (c) two letters of recommendation; (d) copies of relevant reprints/preprints to: Haley Abing at abing@hcp.med.harvard.edu. Application Deadline: February 15, 2025. Commitment to Equity, Diversity, Inclusion, and Belonging. EEO Statement.

New Jersey

■ Princeton University's initiative for Data-Driven Social Science (DDSS) invites applications for Postdoctoral Research Associates. DDSS supports technical and methodological innovation in quantitative social science, addressing a diverse array of new data and analytic challenges, facilitating impactful multidisciplinary collaboration, scholarly advancement, and the creation of tools and public goods. Area of expertise is open; strong technical skills required. Review of applications begins December 1, 2024. <https://tinyurl.com/mrxcszxx>.

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

Vacancy listings will appear on the website for the entire calendar month. Ads may not be placed for publication in the magazine only; all ads will be published both electronically and in print.

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

Employers are expected to acknowledge all responses resulting from publication of their ads. Personnel advertising is accepted with the understanding that the advertiser does not discriminate among applicants on the basis of race, sex, religion, age, color, national origin, handicap, or sexual orientation.

Also, look for job ads on the ASA website at <https://jobs.amstat.org/jobseekers>.

Columbia University Department of Statistics Assistant Professor (Limited Term) Position

The Department of Statistics invites applications for a four-year term position at the rank of Assistant Professor to begin July 1, 2025. The initial term of appointment is one academic year with the possibility of renewal for three years. A PhD in statistics or a related field by the date of appointment is required, as is a commitment to high quality research and teaching in statistics and/or probability. Candidates will be expected to sustain an active research and publication agenda and to teach in the departmental undergraduate and graduate programs. Candidates with expertise in machine learning, big data, mathematical finance and probability theory are particularly encouraged to apply.

The department expects to support successful candidates with a generous research allowance. The expected teaching load is three semester-long courses per year.

The department currently consists of 40 faculty members and 73 PhD students. The department has been expanding rapidly and, like the University itself, is an extraordinarily vibrant academic community. We are especially interested in candidates who, through their research, teaching and/or service will contribute to the diversity and excellence of the academic community. For further information about the department and our activities, centers, research areas, and curricular programs, please go to our web page at: <http://www.stat.columbia.edu>

Qualifications

PhD in statistics or a related field by the date of appointment is required, as is a commitment to high quality research and teaching in statistics and/or probability.

Application Instructions

- All applications must be submitted through Columbia's online Academic Search and Recruiting portal (ASR) <http://apply.interfolio.com/156740>
- The application must include a cover letter, curriculum vitae, teaching statement, research statement and the names of 3 references, who will be asked to upload letters of recommendation.
- Inquiries may be made to Dood Kalicharan at dk@stat.columbia.edu
- Review of applications begins on December 1, 2024, and will continue until the position is filled.
- Salary Range or Pay Grade: \$95,000 – \$100,000

Pay Transparency Disclosure: The salary of the finalist selected for this role will be set based on a variety of factors, including but not limited to departmental budgets, qualifications, experience, education, licenses, specialty, and training. The above hiring range represents the University's good faith and reasonable estimate of the range of possible compensation at the time of posting.

Columbia University is an Equal Opportunity Employer / Disability / Veteran

Pennsylvania

■ The Wharton Statistics and Data Science Department, University of Pennsylvania, seeks applicants for a tenure-track Assistant Professor, beginning July 2025. Applicants must show outstanding capacity and achievement in research, along with excellent teaching skills. Applicants must have a PhD (expected completion by June 30, 2026 is acceptable) from an accredited institution. Please visit <https://statistics.wharton.upenn.edu/recruiting/faculty> position to apply. Questions can be sent to statistics.recruit@wharton.upenn.edu. The University of Pennsylvania is an EOE. Minorities/Women/Individuals with disabilities/Protected Veterans are encouraged to apply.

International Taiwan

■ The Institute of Statistical Science at Academia Sinica is seeking applications for tenure-track positions as Full, Associate, or Assistant Research Fellows. We offer a stimulating research environment with excellent support. Interested candidates are encouraged to apply soon. For more details about the positions and application procedures, please visit our website. We look forward to receiving your application. <https://tinyurl.com/3d5fexkp>. ■

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March 9 – May 29, 2026

The Institute for Mathematical and Statistical Innovation invites applications for Research Memberships for each of its 2025-26 long programs. Financial support is available. Research Members typically spend at least two weeks in residence during the course of a program. For more information, and to apply, see:

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

Propose an Activity

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

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

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



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Top Ten Best Things About Being a Statistician's Dog—as **Reported by Dogs**



Wasserstein

Amstat News continues its entertaining offering by ASA Executive Director Ron Wasserstein, who delivers a special Top 10—one that aired during a recent episode of *Practical Significance*. Wasserstein reflects, “While my dog, Colby, was hanging out with me in my home office, I began to wonder what dogs think about their humans who are statisticians. Knowing that you were ‘converging almost surely’ to the same question, we convened a panel of canines from among the listeners of the *Practical Significance* podcast. From them, we learned that they love dog treats anytime, but we already knew that. Going further, here is what else we learned.”



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



10

Wearing a Lasso instead of a collar

09

Fetching data instead of sticks

08

Splashing around in the data lake and relieving ourselves on decision trees

07

We get mega bites of food

06

After playing and eating, the pile of old journals in the corner is surprisingly comfortable

05

Unlike cats, we never put you in the rejection region

04

Our humans know our expected value is very high

03

They also appreciate our high response rate

02

AI won't replace us—let's see Claude roll over on his belly

#01

Random walks



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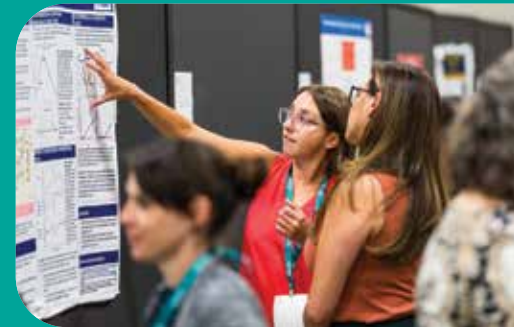
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