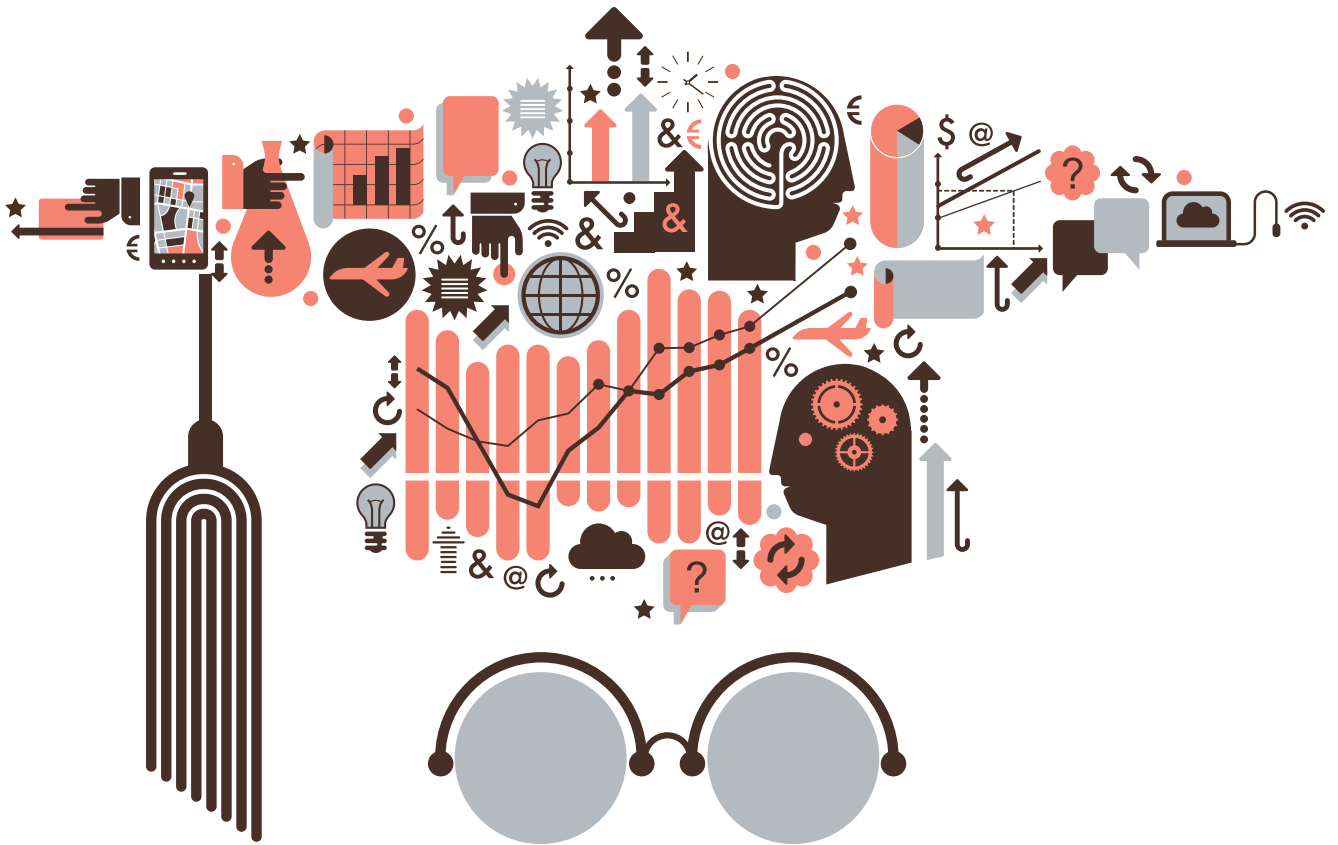


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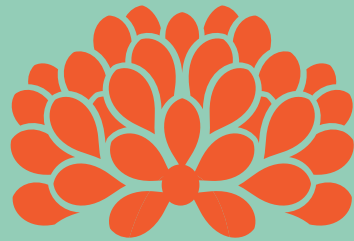


Data Analytics, Data Science Degrees See **LARGE INCREASES** *in 2022*

ALSO:

Diversity Mentoring Program, StatFest See Record Participation

Abstract Submission Underway for JSM 2024



PORTLAND OREGON JSM

AUGUST 3–8, 2024

STATISTICS AND DATA SCIENCE:
INFORMING POLICY AND
COUNTERING MISINFORMATION



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2024 Joint Statistical
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KEY DATES FOR PARTICIPANTS

December 1, 2023 – February 1, 2024
Contributed Abstract Submission

January 15, 2024
Computer Technology Workshop
Proposal Deadline

January 25 – April 4, 2024
Meeting and Event Request Submission

February 1 – April 15, 2024
Late-Breaking Session Proposal
Submission

May 31, 2024
Draft Manuscript Deadline

KEY DATES FOR ATTENDEES



May 1, 2024 (11:00 a.m. ET)
Registration and Housing Open

June 3, 2024
Early Registration Deadline

June 4 – July 1, 2024
Regular Registration

July 2 – August 8, 2024
Late Registration

July 5, 2024
Housing Deadline

AMSTATNEWS

DECEMBER 2023 • ISSUE #558

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American Statistical Association



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

features

- 3 President's Corner
- 5 Georgiou Requests Reopening of 'Violation of Duty' Case
- 5 October Issue of *Significance* Shows How to Climb Mt. Everest and Find Clothes to Fit
- 6 Staff Spotlight: Timishia Bannister
- 6 November Issue of *JSDSE* Features Experimental Design, Data Science Programs
- 7 Innovators Present Methods to Manage Hospital Emergency Rooms
- 8 2023 SPAIG Award Honors UNC, Merck, NCI Collaboration
- 10 Diversity Mentoring Program, StatFest See Record Participation
- 11 My ASA Story: Afia Owusu-Forfie, Statistician and Nonprofit Executive
- 12 Statistics Education Roundtable Planned for New Zealand
- 13 Webinar Series Continues to Democratize Statistical Knowledge
- 14 JEDI Corner: JSM 2023 Offers Ideas, Inspiration for 2024 Sessions
- 16 Data Analytics, Data Science Degrees See Large Increases in 2022

columns

- 22 **STATtr@k**
Reflections on the Transition from Master's to PhD Biostatistician

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

- 24 **STATS4GOOD**
Data for Good: The Year in Review and 2023 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.

Stats + Stories Lesson Plan Contest

The Consortium for the Advancement of Undergraduate Statistics Education, or CAUSEweb, is hosting a contest for the best lesson plans making use of *Stats + Stories* podcasts. Lesson plans should include the appropriate materials needed by both students and teachers and be accompanied by a grading rubric for any assessment.

Along with cash prizes totaling \$1,000, the top winners will present their activity during a panel at eCOTS 2024, which will take place May 28–31. The plans will also be posted on the CAUSE and *Stats + Stories* websites.

The deadline to enter the contest is January 1, 2024. For details, visit CAUSEweb.org.

Poster and Project Competitions

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 grade K–12 students are due every year on April 1. Projects for grade 7–12 students are due on June 1. View submission instructions at <https://bit.ly/34VmGNg>.

Student Paper Contest

Students and recent graduates will have the opportunity to present their research during the seventh International Conference on Establishment Statistics in Glasgow, Scotland, when they submit a full paper for review by February 12, 2024.

The student contest committee will consider all papers that relate to the study of establishment statistics (i.e., statistics on businesses, farms, and/or institutions). Papers can focus on research methodology and/or substantive findings but must be motivated by an issue or challenge pertaining to establishment statistics. Students are limited to one submission, must be the first author of the paper, and must have made a substantial contribution to the content.

For details, visit the ICESVII website at ww2.amstat.org/meetings/ices/2024/studentcontest.cfm.

departments

26 Meetings

Abstract Submission Underway for JSM 2024

Learn, Connect, Collaborate at CSP
in the Big Easy



31 education

2024 Internships

member news

- 37 Awards and Deadlines
- 39 People News
- 40 Section • Chapter • Committee News
- 42 Professional Opportunities



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This Is Our Time: Promoting the Practice and Profession of Statistics

It is a time for science, collaboration, communication, education, and our leadership.



Dionne Price

“The phrase ‘timing is everything’ rings true for the American Statistical Association (ASA), which was formed in November 1839 in Boston—a city that was burgeoning with educational and technical professional opportunities.”

This sentence begins the history section of the About page of our website. The phrase certainly resonates with me, as I am extremely fortunate and grateful to have served as the ASA president at this dynamic time in our history. In my mind, we are in a time in which statistics and data science are needed more than ever to solve complex issues facing society. It is a time for science, collaboration, communication, education, and our leadership. In this, my final column, I want to share some reflections on my time as your president.

First and foremost, the timing of my presidential year afforded me the privilege of working with incredibly dedicated colleagues on the ASA Board of Directors. Given the complexities of our world, I anticipated there would be challenging issues requiring deliberation and thought. Regardless of the issue, discussion among the board members always recognized the value of differing viewpoints and a commitment to action that benefitted our association.

My experiences this year have renewed my belief in the power of mentorship, as I have appreciated the guidance and support offered by my board colleagues. I end my presidential year with a renewed commitment to mentoring emerging leaders of our profession. I am grateful to my colleagues and to you for your continued dedication.

In my first column, I shared that the ASA mission would be my guide. Focusing on the mission, I put forward three initiatives: StatsForward; communication; and developing articulation agreements for two-year colleges. I selected these initiatives fully recognizing this year would be just the beginning. I am pleased we have made progress on all these initiatives. Of course, there remains work to be done.

As I write, the inaugural StatsForward cohort is completing a leadership development curriculum. Looking to 2024, they will continue to develop their leadership skills, engage with ASA leadership, and work together on a capstone project. Many of you have reached out with offers to help as we develop this important program. During this start-up phase, our energies have been focused on developing the curriculum, but we will need your help as we move forward. In my new role as past president, I will continue to work with the cohort and be involved with recruiting and selecting the second cohort, so I will be reaching out to you.

One of my early presentations as ASA president was the keynote address for the 2023 Conference on Statistical Practice. In September, I participated in the ASA Biopharmaceutical Section Regulatory-Industry Statistics Workshop. In between, I have participated in many meetings and webinars, shared updates on LinkedIn, and been delighted by the updates provided in the *Chapter Chatter* e-newsletter.

I have learned much from all of you about our scientific endeavors, what matters to you as a body, and areas in which we need to focus on moving forward.



Dionne Price gives the President's Address, "Our Mission in Action: Past, Present, and Future," at this year's JSM in Toronto, Ontario, Canada.
Photo by Eric Sampson/ASA

I chose to focus on communication as one of my initiatives because the communication landscape is so dynamic, and we want to ensure our membership and beyond are aware of the awesome work, opportunities, and activities underway. This is an initiative that will be ongoing. I will continue to be part of the work to guarantee we continue to embrace communication opportunities to strengthen our community and raise public awareness of the impact of our profession.

Ensuring the future of our profession is one of our strategic themes. According to an analysis by the Community College Research Center at Teachers College Columbia University, 8.9 million students were enrolled at community colleges in the 2020–2021 academic year. My final initiative has been to support a seamless transition for two-year college students to four-year colleges.

Articulation agreements can be influential in ensuring best practices in teaching introductory statistics and data science. Course-to-course agreements guide whether a course offered at the two-year college will transfer to the four-year institution and fulfill degree and prerequisite requirements. A working group plans to write a white paper or similar document to offer guidance in creating and reviewing these documents, specifically addressing the essential curriculum for introductory statistics. This is a challenging initiative since the coordination of public higher education varies from state to state, but I am committed to supporting this critical effort.

Serving as your ASA president has been an enriching and deeply meaningful experience. I have learned much from all of you about our



Dionne Price speaks during the panel titled "New Statistical Approaches for Leveraging Auxiliary and Real-World Data in Rare Disease Research" at the ASA Biopharmaceutical Section Regulatory-Industry Statistics Workshop.
Photo by Olivia Brown/ASA

scientific endeavors, what matters to you as a body, and areas in which we need to focus on moving forward. I am proud of what we have accomplished thus far, and I look forward to all that is to come for our profession.

The conclusion of my service is marked by a deep sense of gratitude to all of you who make up the ASA community. Although my time as president is coming to an end, it is not the end of my commitment to promoting the practice and profession of statistics. This is our time for impact and influence for the greater good.

A handwritten signature in black ink that reads "Dionne Price".

Georgiou Requests Reopening of 'Violation of Duty' Case



Andreas Georgiou
Photo courtesy of the Georgiou family

Andreas Georgiou recently asked the Greek judiciary to reopen the 2017 criminal case that examined his role as head of the Hellenic Statistical Authority (ELSTAT) and found him guilty of “violation of duty” because he did not submit corrected Greek deficit and debt statistics to a vote by an ELSTAT board before transmitting them to Eurostat (the statistical authority of the EU) in November of 2010. This follows the March 2023 decision of the European Court of Human Rights in favor of Georgiou, which found his human rights were violated due to an unfair trial and asked for a retrial at the Greek Supreme Court.

The violation of duty case has a long history. A criminal investigation into Georgiou was opened in September of 2011, and charges were filed against him in 2013. Following the consecutive rejection of proposals by several investigating judges and prosecutors to drop the charges, Georgiou was first brought to trial in 2016 and acquitted. However, in 2017, he was tried again, convicted, and given a suspended two-year prison sentence. Georgiou asked the Greek Supreme Court to annul his conviction, citing serious legal and due process problems, but was denied, rendering his conviction irreversible within the Greek legal system.

In March of 2023, the European Court of Human Rights judged that Georgiou’s right to a fair trial had been violated in the 2017 trial for failure of the Greek court system to act on a request from Georgiou to put a pre-trial question to the Court of Justice of the EU (the administrative court of the EU) about the correct interpretation of the European Statistics Code of Practice regarding the production of official statistics in EU countries. Provision 1.4 of that code requires that the head of a statistical authority “have the sole responsibility for deciding on statistical methods, standards and procedures, and on the content and timing of statistical releases.” The European Court of Human Rights explicitly asked for a retrial of the case.

With Georgiou’s request, the Greek Supreme Court can reopen the trial. Georgiou wrote in his application, “Since the true meaning of the relevant provision 1.4 of the European Statistics Code of Practice is that alleged by the applicant, the criminal proceedings against him should be definitively discontinued and he should be acquitted of all charges, given that his plea in law alleging misinterpretation and misapplication of that provision is upheld.”

Members of the ASA Board of Directors have long called for Greek officials to end the persecution of Georgiou and exonerate him. In a May 2018 statement, they wrote, “The continued prosecution of Georgiou undermines the current production of Greek statistical figures, the accuracy and objectiveness of which are paramount for attracting foreign investment and ending Greece’s cycles of economic crises.” ■

SIGNIFICANCE HIGHLIGHTS

October Issue Shows How to Climb Mt. Everest and Find Clothes to Fit

How can you ensure your Everest expedition ends in success? Why is it so hard to find a good fit when shopping for clothes? This issue of *Significance* has statistical answers to both these questions, and a good many more besides.

We’ve also interviewed Robert Santos, director of the US Census Bureau, who proudly brings his “whole self” to one of the biggest jobs in US statistics. From his Mexican heritage to his previous side-hustle as a live music photographer, one unique life experience after another has helped him become the statistician and leader he is today.

As Santos explains, because statistics *affects* everybody, official data-gathering organizations like his must *talk to* everybody. And two articles in this October issue pick up on Santos’ view that nurturing understanding and trust in the public is vital—whether it’s through formal educational channels and focus groups or just ripping up the communications plan and starting fresh.

Access the digital version of *Significance* through the ASA member portal at <https://amstat.users.membersuite.com/home>. Print issues will be mailed to subscribers soon. *Significance* is also online at www.significancemagazine.com. ■



Read *Significance* online at www.significancemagazine.com.

Staff Spotlight:

Timishia Bannister

Hi, my name is Timishia Bannister, the ASA's new customer service representative, and here are a few fun facts about me. I was born and raised in Washington, DC, but I am a current resident of Alexandria, Virginia. Most of my family lives in the area, though I do have family in different parts of North Carolina and Georgia.



Bannister

I have been in customer service for a little more than 10 years now, first retail, then corporate, and now associations. I have worked in the

association field for about four years.

I am a travel fanatic. I love to travel! My favorite vacation of all time was going to New Orleans, Louisiana. I have traveled to different states (Georgia, Nevada, Louisiana, Texas, and Florida) and different countries (Mexico, Jamaica, and St. Lucia). I traveled to Jamaica and Mexico alone! I love seeing new things and experiencing new areas, food, etc.

Coming to the ASA has been such a pleasurable experience. Everyone has been so welcoming and helpful, and I am honored and grateful to be part of the ASA team. One of my favorite things about working at the ASA is the conferences. The conferences are informative, and I learn a lot while attending them. This year was my first year going to the Joint Statistical Meetings and ASA Biopharmaceutical Section Regulatory-Industry Statistics Workshop and I have to say I enjoyed both. I will be attending the Conference on Statistical Practice in February and am looking forward to it. ■

JOURNAL OF STATISTICS AND DATA SCIENCE EDUCATION HIGHLIGHTS

November Issue Features Experimental Design, Data Science Programs

Nicholas Horton, *JSDSE* Editor

Editor Wanted

The ASA invites nominations and applications for the position of editor of the *Journal of Statistics and Data Science Education*. The new editor will serve from 2025 through 2027, with the transition beginning in 2024. The *JSDSE* editor receives significant assistance from the editorial coordinator, an independent contractor engaged by the ASA. Applications, due February 16, 2024, can be sent to Eric Sampson, ASA journals manager, at eric@amstat.org.

For details and job descriptions for this and additional editor positions, visit <https://bit.ly/3MCMQHq>.

The November issue of the open-access *Journal of Statistics and Data Science Education* leads with a set of three papers related to design of experiments. Byran J. Smucker, Nathaniel T. Stevens, Jacqueline Asscher, and Peter Goos bring together educators in “Profiles in the Teaching of Experimental Design and Analysis,” while Victoria Woodard contributes “Five Hands-On Experiments for a Design of Experiments Course.” The cluster also includes “Repurposing a Peer-Reviewed Publication to Engage Students in Statistics: An Illustration of Study Design, Data Collection, and Analysis” by Ciaran Evans, William Cipolli, Zakary A. Draper, and John-Tyler Binfet.

Mary Glantz, Jennifer Johnson, Marilyn Macy, Juan J. Nunez, Rachel Saidi, and Camilo Velez share “Students’ Experience and Perspective of a Data Science Program in a Two-Year College,” while Nicole M. Dalzell and Ciaran Evans author “Increasing Student Access to and Readiness for Statistical Competitions.”

A pair of technology papers—“Web-Based Applets for Facilitating Simulations and Generating Randomized Datasets for Teaching Statistics” by Yuanting Lu and “Teaching Experiential Data Analytics Using an Election Simulation” by Bay Arinze—provide guidance.

The issue also includes the following papers:

- “A Biostatistical Literacy Course: Teaching Medical and Public Health Professionals to Read and Interpret Statistics in the Published Literature” by Ann M. Brearley, Kollin W. Rott, and Laura J. Le
- “Statistics and Common Sense” by Nobuyuki Hanaki, Jan R. Magnus, and Donghoon Yoo
- “Preparing Students for the Future: Extreme Events and Power Tails” by Marek Arendarczyk, Tomasz J. Kozubowski, and Anna K. Panorska

These papers can be found at www.tandfonline.com/journals/ujse21. ■

Innovators Present Methods to Manage Hospital Emergency Rooms

Philip (Bo) Hammer

The quantification of medical and health care has revolutionized human lives and effected long-lasting social and economic change. This revolution stems from synergies among mathematics, statistics, data science, medicine, machine learning, and artificial intelligence that have prompted new interdisciplinary areas.

For example, the pandemic catalyzed cross-disciplinary work on patient flow through hospital emergency departments among statisticians, operations researchers, actuaries, and AI/ML researchers. COVID transformed how hospitals organize the flow of patients during unexpected extended emergencies that put stress on limited resources such as beds, supplies, and staffing.

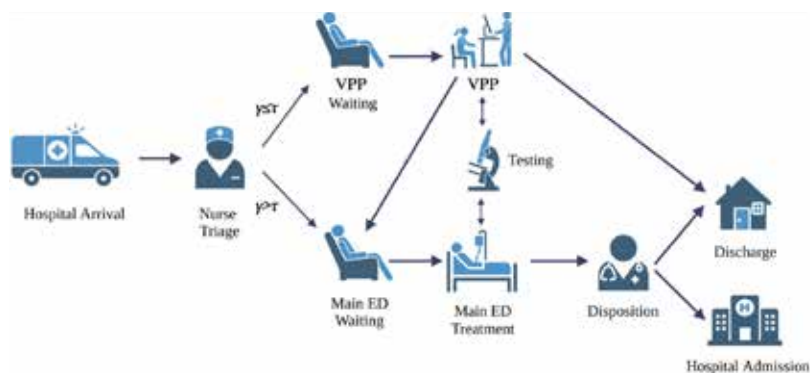
The Institute for Mathematical and Statistical Innovation brought together a number of pioneers March 27 to June 2 for a program called Mathematics, Statistics, and Innovation in Medical and Health Care. The aim was to talk about how their work is helping manage busy and overcrowded emergency departments.

Vahid Sarhangian—a statistician at the University of Toronto who spoke during a workshop called Predictive Analytics, Business Modeling, and Optimization in Healthcare Operations Management—examined the admission, flow, and treatment of COVID vs. non-COVID patients. He explained there was a geographic mismatch between demand for hospitalization and hospital capacity during the pandemic and described how high hospital occupancy is statistically associated with worsened health outcomes and higher mortality, adding that there are associated equity issues around these facts.

Sarhangian developed a stochastic control model for flowing patients in and among hospitals that takes into account distances between hospitals and the cost of transferring patients. He proposed a solution for “load balancing” via inter-hospital transfers and tested his model on 3,000 transfers among hospitals in Ontario, Canada.

Hospital emergency departments are many times crowded and have long wait times. Predicting wait times is complex because it depends on the number of patients in the emergency department at a given time, which is constantly changing, and triage, which allows a person’s place in line to change if another patient arrives in worse condition.

Georgia Perakis, a professor of management at MIT who specializes in machine learning and operations research, discussed her work using ML to



The vertical processing pathway design for the emergency department (ED). The score γ indicates the predicted risk a patient needs an ED bed and is estimated by a machine learning model. The classification threshold τ determines the proportion of patients routed to the VPP unit versus the main ED.

manage triage in a data-driven way that is also equitable during a workshop titled Analytics for Improved Health Care. Complicating factors is that women tend to have longer wait times but not a longer time to discharge, which could negatively affect health outcomes. Perakis hopes her work will make emergency department management more efficient for hospitals while improving health outcomes and the overall experience for patients.

Emergency department overcrowding can lead to undesirable health outcomes such as the patient leaves before being treated, the patient’s condition worsens while they are waiting, or the patient is triaged inequitably. Agni Orfanoudaki, a professor of operations management at the University of Oxford who also spoke during Analytics for Improved Health Care, uses machine learning to improve operational efficiency in the emergency department. Her focus is on nurse-driven “rapid medical assessment,” a strategy to triage patients nearly upon arrival to determine whether they need a bed or can be treated more quickly sitting in a chair. The goal is to discharge everyone who receives a rapid medical assessment and does not need a bed as soon as possible. She uses training data in her ML model to make better predictions about which patients should be prioritized for a bed and which can be quickly treated and discharged.

For more information about the program, videos of the talks, and speakers’ slides, visit <https://bit.ly/46id4FX>. ■

MORE ONLINE
To learn more about the Institute for Mathematical and Statistical Innovation and how to propose an activity, visit www.imsi.institute.

2023 SPAIG Award Honors UNC, Merck, NCI Collaboration

Xiaojing Wang, University of Connecticut, and Michelle Shardell, University of Maryland School of Medicine



From left: Amarjot Kaur of Merck, Joseph Ibrahim of The University of North Carolina, Guoqing Diao of The George Washington University, Arvind Shah of Merck, and Jianxin Lin of Merck. Eric Sampson/ASA

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

This year, the SPAIG Award honors the collaboration between The University of North Carolina at Chapel Hill Gillings School of Global Public Health, Merck, and National Cancer Institute for their research in clinical trials and outcomes research.

For 14 years, the Gillings School of Global Public Health, Merck, and National Cancer Institute have improved the efficiency of drug development and helped safe and effective medications reach patients sooner. The collaboration has led to the development of innovative and impactful statistical methods and software applicable to pharmaceutical research and yielded an array of positive outcomes, including numerous student dissertations, peer-reviewed publications, seminars, and short courses.

Here, Lisa LaVange and Joseph Ibrahim answer a few questions to give insight into their collaboration.

Can you describe how the collaboration started?

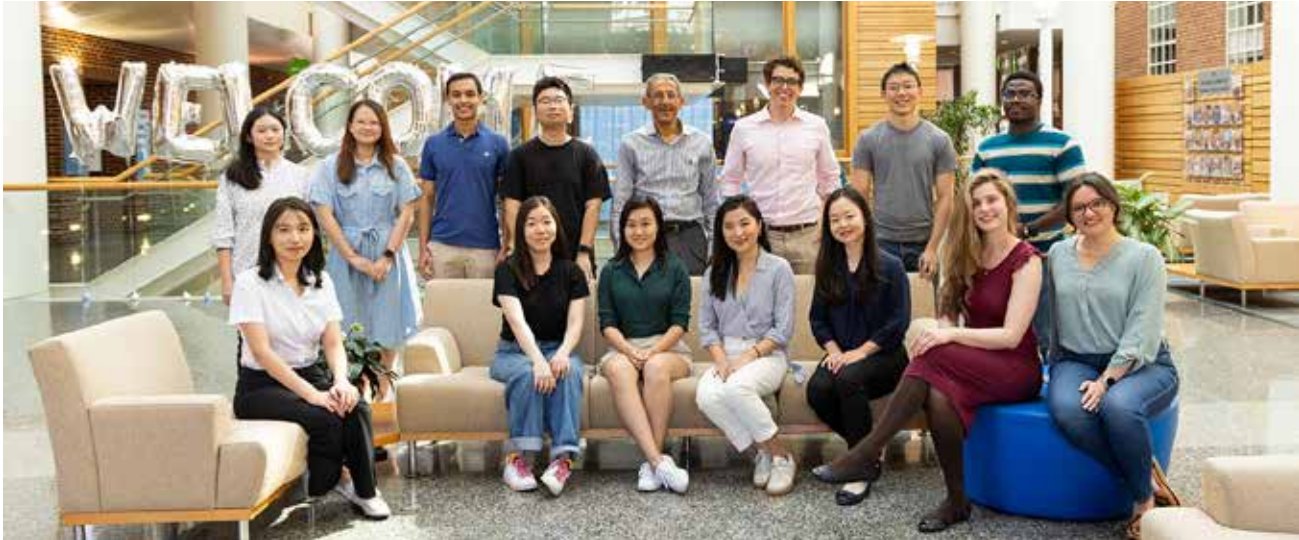
The 2023 SPAIG Award-winning collaboration began in 2007, when Sir Dennis Gillings made an unprecedented donation to the school of public health at The University of North Carolina at Chapel Hill with the vision of using part of those funds to motivate ground-breaking research in clinical trials. The CICT was founded with the mission of establishing collaborative partnerships with industry and government to advance applied methodological research in clinical trials and related areas that would be impactful to drug development, the practice of medicine, and public health. Joseph Ibrahim was named CICT director and has led the center since its inception.

From the beginning, Ibrahim pursued partnerships with various pharmaceutical companies and government agencies to realize Gillings' vision. One of the earliest collaborations was with Merck, Sharp, and Dohme, which was established in 2009 and is still going strong. The National Cancer Institute soon joined the collaboration, providing an additional source of funding and bringing the government research perspective to the group. With the support of Merck and other companies, the CICT has grown considerably over the years, adding faculty, supporting graduate students, and resulting in more than 40 publications to date.

The many statisticians at UNC, Merck, and the NCI have combined their strength and expertise to guide several research projects and software development activities for the past 14 years, and we envision many more years of successful collaboration to come.

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

One of the major benefits of this collaboration has been exposure to important applied statistical research problems arising from real-world issues faced by industry and government agencies that we might not have been exposed to in a university environment. Just a few of the problems addressed



The Center for Innovative Clinical Trials at The University of North Carolina provides the foundation for the collaboration honored with the SPAIG Award. Photo courtesy of The University of North Carolina

to date include innovative design issues in clinical trials, development of statistical methods for treatment crossover during a trial, complex missing data problems, adaptive designs with complex schemes, biomarker studies, incorporation of historical data into the design and analysis of clinical trials, and meta-analysis and network meta-analysis.

The collaboration has not only led to new methodological ideas—both theoretical and applied—and many novel statistical publications, but has also enabled us to make an impact on the field from both industry and regulatory perspectives. An excellent example of this impact is what is now becoming a standard use of the power prior in both industry and among regulators for the incorporation of historical data into the design and analysis of clinical trials.

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

The most rewarding aspects have been meeting new applied researchers outside of academia and being exposed to and solving the important applied statistical research problems they bring to the collaboration that make an impact in practice. Impact is the key motivating element for statistical researchers, and these collaborations have greatly facilitated and influenced impact in the field and in statistical practice.

Some of the most challenging aspects have been the ability to find suitable partnerships when the end goal is to carry out applied statistical methodological work for advancing the field and statistical practice. Not every partnership has this as their primary mission for various reasons, including staff, resources, time, and size. Another challenging

aspect has been the ability to secure government funding and identify government researchers with an interest in becoming part of the collaborative team. Their direct input on important research problems we face in clinical trials and related areas has been valuable to the collaboration.

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

Be more vocal and reach out to one another to form collaborative teams in which each member brings a unique skill set to the table. Such teams can be powerful and impactful from a statistical research perspective. Also, encourage leaders in the field to advocate for and support such collaborations with their co-workers and provide appropriate resources to make such collaborations thrive, be sustainable, and be fruitful. ■

Key Contributors

Lisa M. LaVange, *The University of North Carolina* (nominations)

Joseph G. Ibrahim, *The University of North Carolina*

Joseph Heyse, *Merck*

Bill Wang, *Merck*

Ming-Hui Chen, *University of Connecticut*

Arvind Shah, *Merck*

Sungduk Kim, *National Cancer Institute*

Jianxin Lin, *Merck*

Donglin Zeng, *University of Michigan*

Guoqing Diao, *The George Washington University*

Ethan Alt, *The University of North Carolina*

Amarjot Kaur, *Merck*



Olivia Brown/ASA

Diversity Mentoring Program participants at the Joint Statistical Meetings in Toronto, Canada, in August

Diversity Mentoring Program, StatFest See Record Participation

The Diversity Mentoring Program and StatFest are possible due to donations from ASA members and friends. Contact Amanda Malloy at amanda@amstat.org or Therri Usher at therri.usher@fda.hhs.gov to learn how you can help.

For the first time in four years, the Committee on Minorities in Statistics held in-person meetings for both its signature programs, the Diversity Mentoring Program and StatFest. The mentoring program is geared toward graduate students and early-career professionals from traditionally underrepresented communities, while StatFest is a pathway program aimed at encouraging undergraduate students in those same communities to consider graduate studies and careers in statistics and data science.

Both programs experienced a record level of participation this year. The Diversity Mentoring Program matched 45 mentees to mentors across all sectors of statistics. And, despite Tropical Storm Ophelia landing the same day, StatFest welcomed approximately 170 attendees.

The Diversity Mentoring Program was held during the 2023 Joint Statistical Meetings in Toronto, Ontario, Canada. It kicked off Sunday evening with a dinner for mentees and mentors.

Monday's session set the tone for the program with a panel on the importance of leveraging mentorship for career

development, which was followed by parallel sessions focused on tips to help graduate students and early-career professionals thrive.

Tuesday's session focused on career navigation, starting with a panel of statisticians who shared lessons learned through their career journeys and ending with two parallel sessions about career opportunities in statistics and data science and virtual mentoring and interviewing. The session on virtual mentoring and interviewing was jointly organized with the JEDI Outreach Group.

The Diversity Mentoring Program concluded Wednesday, which started with a focus on mental health, emphasized during a presentation by Carmen Tekwe of Indiana University about building resilience. The finale of Wednesday's agenda was a roundtable discussion during which participants had the opportunity to ask any lingering questions.

This year's StatFest was held September 23 at the SAS Institute in Cary, North Carolina. The day began with a keynote address by Ché Smith of Netflix, who shared her educational and career journey using movie and television posters.

The day continued with an interactive session about building a mentorship network led by Ray Levy of North Carolina State University. Two career panels—one on academia, government, and nonprofit sectors and one on the industry sector—gave attendees a glimpse into career opportunities in each.

Students also learned about the graduate school application process from Merlise Clyde of Duke University and used their newfound knowledge during a student-only panel known as The Graduate Student Experience.

Throughout the day, attendees were able to take advantage of the StatFest Expo to network and connect with 12 institutions, including Two Sigma, North Carolina State University, and Merck.

As is StatFest tradition, the day ended with continued networking during an ice cream social.

The Diversity Mentoring Program will take place again at JSM 2024 in Portland, Oregon, while StatFest 2024 will be held at Columbia University in New York City. For information about either program, visit the Committee on Minorities in Statistics website at <https://bit.ly/472ekhP>. ■

MY ASA STORY

Afia Owusu-Forfie

Statistician and Nonprofit Executive

My ASA story began in 2005, when I met statistics professor Dr. Baidoo while studying in my junior year, or level 300, at the University of Ghana. I had decided I was going to quit the statistics major I was pursuing along with the computer science major and opt for psychology or geology, following a couple of bad grades in statistics. I believed I had come to the end of my limits with statistics.

As a course adviser who is a Ghanaian American, professor Baidoo introduced me to the American Statistical Association when he learned my mother lived in the United States. I called my mother—who lived in Alexandria, Virginia, at the time—and she said she saw the ASA office while sitting on a bus. Knowing this was a credible request from me to join, she sent me money, and I gave the money to my course adviser to get me enrolled.

After a couple of months or so, my dad came home to Ghana with several ASA magazines, and I went to my room and began perusing the pages. I remember seeing the impact of statisticians and resolving to continue with my statistics major. In December 2007, I attended my first ASA conference in Atlantic City, New Jersey. There, too, I renewed my commitment to pursue an advanced degree in statistical science at George Mason University.

Another key touch point with the ASA was when I served as a teaching assistant in one of the statistics trainings during the 2017 Joint Statistical Meetings at the Baltimore Convention Center. I was given free course materials for my efforts that were relevant to my applied statistics education while working at Deloitte.

Today, I'm a senior data analytics consultant/data analytics consultant alumna of Deloitte Consulting LLP/Deloitte & Touche LLP, as well as a senior programmer analyst II alumna at Mathematica Policy Research.



Photo courtesy of Kofi Amanin Jr.

Afia Owusu-Forfie



Afia's Mind Map

I also run a nonprofit organization, Coders Who Travel, with the mission to inspire and advance the careers of coders—computer and mathematical programmers—in emerging markets and underserved communities. I have led the organization to train US military veterans, career professionals at Deloitte Consulting LLP, students at the University of Ghana, and women via three-month Python, SAS/SAS Viya, and R boot camps.

I'm also a composer and recording artist of more than 24 Christian songs. A picture is worth a thousand words, so I'm pleased to share my mind map! ■

MORE ONLINE

Learn about Afia Owusu-Forfie's nonprofit organization, Coders Who Travel, at www.coderswhotravel.com.

Statistics Education Roundtable Planned for New Zealand

Travis Weiland, Anna Fergusson, and Dani Ben-Zvi

Visit the roundtable website at iase2024roundtable.github.io for more information.

Questions about the conference can be directed to Travis Weiland or Anna Fergusson at iase2024roundtable@gmail.com.

The International Association for Statistical Education will hold its 2024 Roundtable Conference July 2–5 in Auckland, Aotearoa, New Zealand, just before the 15th International Congress of Mathematics Education (July 7–14 in Sydney, Australia).

The association's roundtables are working conferences that aim to bring 40–50 educators together from around the world to share their expertise and experiences in statistics and data science education. This year's theme is "Connecting data and people for inclusive statistics and data science education."

Conference submissions will be accepted via its website at <https://iase2024roundtable.github.io>. To ensure the conference program allows time for deep conversations about each presentation and is inclusive across the range of statistics and data science educational contexts, approximately 50 refereed submissions will be accepted, with priority given to those with wide international participation and diverse perspectives.

By exploring the ways data and people are connected, one goal of the conference is to generate inclusive approaches that do the following:

- Support students with diverse needs and physical challenges
- Acknowledge and validate indigenous and cultural knowledge related to data
- Address the impact of social and economic factors
- Consider creative ways to support learners within under-resourced contexts
- Challenge the status quo and inherent biases
- Take an interdisciplinary perspective
- Inform the design of digital tools or resources, tasks, and modern learning environments
- Take a humanistic stance

Through a mixture of formats, including extensive discussions in small groups, the meeting will advance current knowledge of conceptual frameworks, teaching methods, technology solutions, and curricular materials.

An important outcome of the roundtable will be a monograph containing a set of high-standard updated papers and concrete teaching materials reflecting the discussions and work during the

roundtable. All papers and posters, as well as teaching resources based on the roundtable, will be published on the association's website at <https://iase-web.org>.

It is possible to participate in the roundtable in one of four roles: paper presenter; workshop organizer; poster presenter; and discussant leader.

Paper Presenter

To be a paper presenter, your submission must include a detailed description of your planned paper (ca. 300 words) with the following sections: purpose; design/methodology; results/outcomes; implications for theory and practice; and contribution to the theme of the roundtable and its topics.

Submissions will be due toward the end of November. First drafts will be due at the end of February 2024.

Workshop Organizer

To be a workshop organizer, your submission must include a detailed description of your workshop (ca. 300 words) with the following sections: purpose; learning objectives; key learning activities; implications for theory and practice; and contribution to the theme of the roundtable and its topics.

Submissions will be due toward the end of November. First drafts will be due at the end of February 2024.

Poster Presenter

To present a poster, your submission must include a detailed description of your planned poster (ca. 300 words) with the following sections: purpose; design/ methodology; results/ outcomes; implications for theory and practice; and contribution to the theme of the roundtable and its topics.

Submissions will be due toward the end of January 2024, with notifications about acceptance sent out by the end of February.

Discussant Leader

To serve as a discussant leader, your submission will require an extended description of relevant background and interest (200–300 words).

Submissions will be due toward the end of January 2024, with notifications about acceptance sent out by the end of February. ■

Webinar Series Continues to Democratize Statistical Knowledge

Sloka Iyengar, American Museum of Natural History; Carolina Franco, NORC at the University of Chicago; and Alexandra M. Schmidt, McGill University



Become Part of the Effort

Sign up to become a friend of the ASA Committee on International Relations in Statistics at <https://bit.ly/3FXJj2A>. Friends receive occasional emails about topics of international interest such as webinars and job and volunteer opportunities.

Become part of SWB for free by filling out the form at <https://bit.ly/3SWHDrJ>. If you know of an organization that needs pro bono statistical expertise, send them our form at <https://bit.ly/47tISsK>.

MORE ONLINE
Read more about the webinar series at <https://bit.ly/3SG2NR4>.

The American Statistical Association's Committee on International Relations in Statistics and Statistics Without Borders, often referred to as SWB, came together in the spring of 2022 to engage statisticians and data scientists based in different parts of the world and provide them with new educational opportunities via a bimonthly webinar series that introduces a multitude of statistical topics. The webinars, presented by experts in their fields, have reached more than 1,000 professionals and students globally, and participation is trending upward, with the last webinar drawing a record 460 attendees. The sessions—in which speakers share real-world issues and problems in their fields—are geared toward a general audience with a background in statistics.

Committee chair Carolina Franco offered the first

webinar, titled “An Introduction to Small Area Estimation (SAE),” in May of 2022. Throughout the remainder of that year, the webinar series built momentum as more people learned about it and additional topics were introduced. Shirin Golchi presented “An Introduction to Bayesian Inference,” Alexandra M. Schmidt presented “An Introduction to Spatial Statistics with Applications to Disease Mapping,” and Jennifer A. Hoeting presented “Deep Learning: Opening the Black Box.”

In 2023, the webinar series featured several new webinars, including the following:

- “Introduction to Bayesian Modeling of Epidemics: From Population to Individual-Level Models” by Rob Deardon
- “An Overview of Some Methods for Statistical Analysis with Missing Data” by Rod Little
- “An Introduction to Time Series Analysis via Dynamic Linear Models” by Raquel Prado

The resources shared during these sessions, including the recordings and slides, are freely available at <https://bit.ly/3SEaPKc>.

Suggestions for potential topics can be sent to Alex Schmidt at alexandra.schmidt@mcgill.ca, Carolina Franco at franco-carolina@norc.org, or Statistics Without Borders at statisticswithoutborders@gmail.com. ■

- “Positioning Household Surveys for the Next Decade: Data Integration and Inclusion” by Talip Kilic and Papa Seck
- “Causal Inference in Statistics: Why, What, and How” by Erica Moodie

JEDI CORNER

JSM 2023 Offers Ideas, Inspiration for 2024 Sessions

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



David Corliss is the principal data scientist at Grafham Analytics. He is the author of the *Amstat News* column *Stats4Good* and the founder of *Peace-Work*, a Data for Good nongovernmental organization.

Each year, the Joint Statistical Meetings brings together the largest group of statisticians and data scientists in North America. Since the Justice, Equity, Diversity, and Inclusion Outreach Group's establishment in 2021, JSM has also become a focus of the group's activities. Now that the 2023 conference is a wrap, it's time to plan for next year, when the JEDI community will once again come together to share, teach, meet old friends, and make new friends.

The 2023 conference offers inspiration for 2024 presentations. For example, in *Imposter Syndrome* and the *Hidden Curriculum Manifestation Within and Between Sectors*, panelists described their experiences of doubting their own intellect, skills, and accomplishments and discussed how to address these challenges.

The session titled *Critical Race Theory for Statisticians: Incorporating CRT into Statistical Analyses* focused on incorporating critical race theory into research in statistics and data science, with presentations from

some of the most distinguished voices in critical race theory as a statistical practice. Expanding on this for 2024, each area of practice could develop into its own critical race theory session, exploring the impact of systemic racism on health, public policy, education, and the legal system. The growth of critical race theory as a statistical practice can also inspire JEDIs to lead research on issues related to gender identity and sexual orientation, immigration and language, disability, and ageism.

Additionally, JSM 2024 sessions can develop sessions such as the JSM 2023 session *Teaching with Datasets That Recognize the Intersectional Perspectives of Students*. It focused on teaching and curriculum development strategies that help educators strengthen classes with diverse data and perspectives and teach the methods used in analyses related to justice, equity, diversity, and inclusion.

Another great opportunity comes through partnerships with ASA organizations that have interests closely related to JEDI, such as the Professional

Ethics, Scientific Freedom and Human Rights, Women in Statistics, and Statistics and Disability committees.

JEDI-related sessions are well attended and bring in people from many areas of statistics and data science, so we can expect the JEDI footprint at JSM to grow, especially since these sessions offer so many opportunities for students and early-career statisticians and data scientists to participate. One such session at JSM 2023, *Statistical Scientists of the Math Alliance: A Focus on Diversity and Recent Graduates*, was sponsored by the JEDI Outreach Group and showcased the research accomplishments of recent graduates associated with the Math Alliance.

Early-career statisticians and data scientists can also become involved with JSM by presenting a poster or volunteering to chair a session. Posters are an important opportunity for people making their first conference presentation, and JSM poster sessions introduce students and early-career statisticians and data scientists to a wide audience. As far as volunteering to chair a



From left: Brittney Bailey, Julia Sharp, and Michael Jadoo (at the lectern) share their experiences with imposter syndrome during the JEDI-sponsored session titled Imposter Syndrome and the Hidden Curriculum Manifestation Within and Between Sectors.

session, several chairs for JEDI-related sessions were emerging scholars and leaders in 2023.

The questions and methodologies of justice, equity, diversity, and inclusion affect all areas of statistical science. The Council of Chapters sponsored a session titled Metrics and Statistical Analyses of JEDI-Related Data. The Health Policy Statistics Section hosted a session examining the impact of historical structural racism on present-day health outcomes in Measures and Applications for Relating Historical Structural Racism with Contemporary Health Outcomes. And technical methodology presentations such as the Biometrics Section-sponsored session titled Statistical Innovation

in Emerging Fields of Clinical Research: Diversity, Equity, and Inclusion (DEI); Learning Health System (LHS); Dissemination and Implementation Science (D&I) teach methods needed to address diversity and equity questions.

In all, statisticians and data scientists sponsored or contributed more than 60 papers, posters, short courses, and roundtable discussions in dozens of research areas with a JEDI lens. Many are highlighted on the JEDI Outreach Group's website at <https://datascijedi.org/jedi-at-jsm>.

The strong presence of the JEDI Outreach Group at JSM demonstrates how the group has grown to become a major resource for the support and

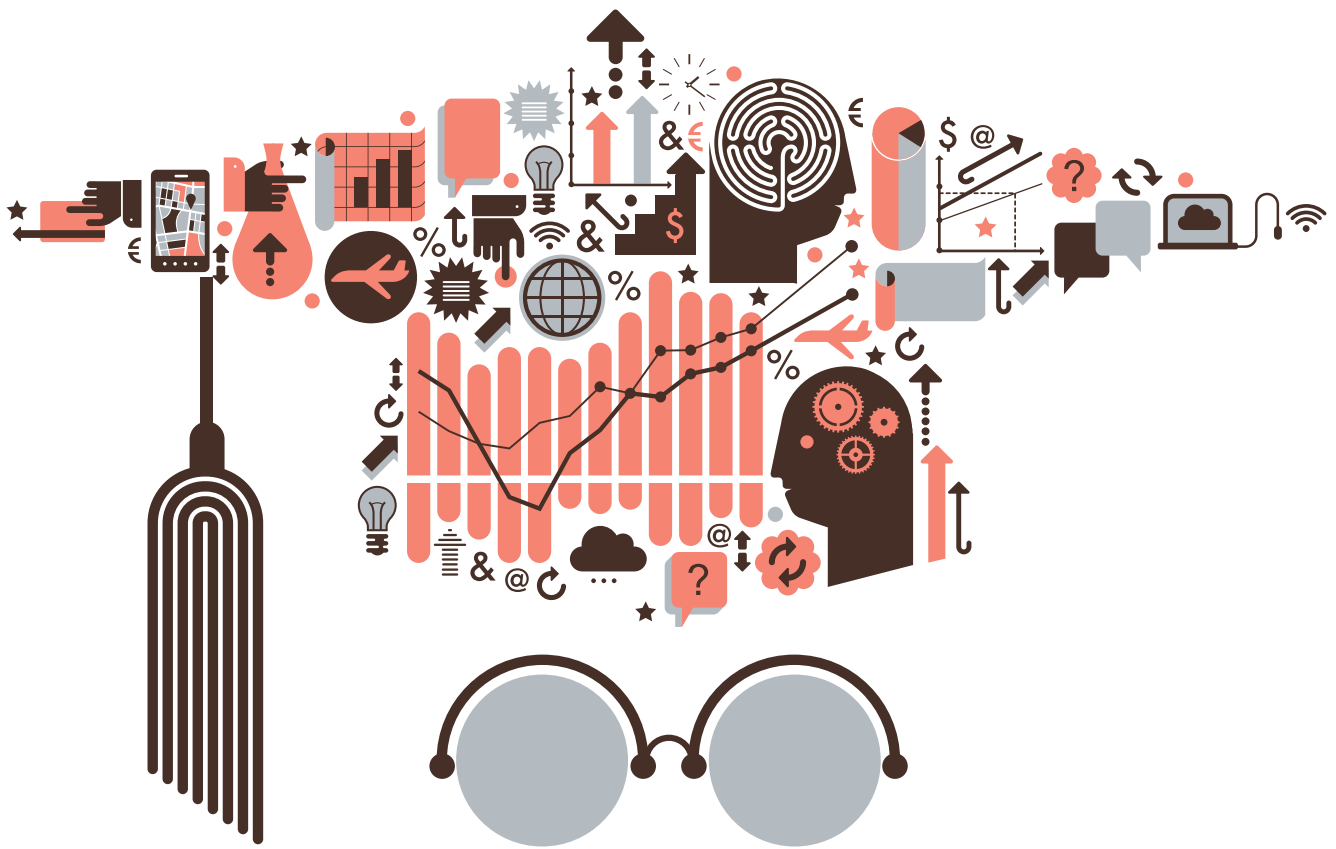
dissemination of new projects across the statistical landscape.

Planning is underway for JSM 2024. Contributed abstracts will be accepted until February 1, so consider submitting one. I would like to see more presentations about diversity issues in different areas, pursuits, and industries; more international sessions to leverage the accomplishments of groups throughout the world; and more opportunities for students and early-career statisticians and data scientists.

For more information about submitting a JSM 2024 abstract, visit ww2.amstat.org/meetings/jsm/2024/submissions.cfm. ■

MORE ONLINE

For information about submitting a JSM 2024 abstract, visit ww2.amstat.org/meetings/jsm/2024/submissions.cfm.

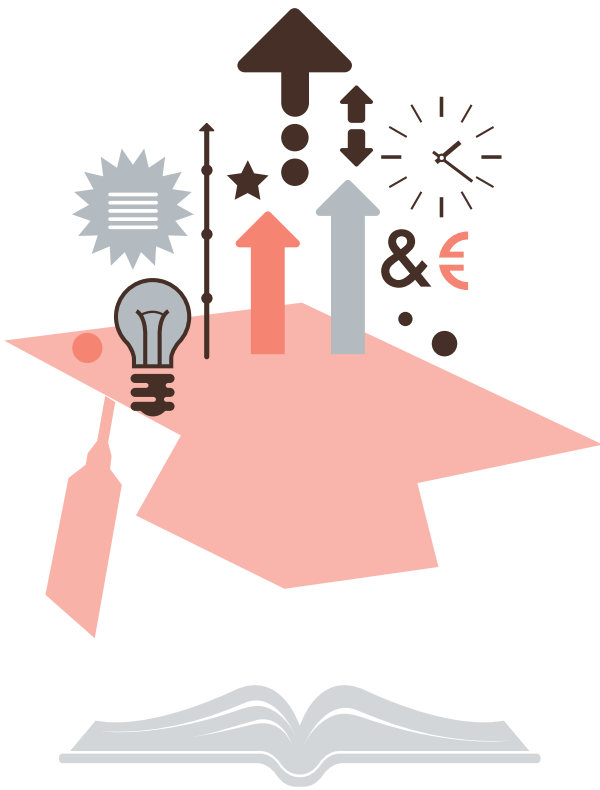


Data Analytics, Data Science Degrees See **LARGE INCREASES** *in 2022*

Statistics Master's Degrees Drop 15 Percent

Steve Pierson, ASA Director of Science Policy

This fall's release of the 2022 degree completion data from the National Center for Education Statistics is marked by the large increases in the undergraduate and master's degrees awarded in the recently introduced categories for data analytics and data science. The number of bachelor's degrees in data science, for example, jumped to 897 in 2022, from 165 in 2021 and 84 in 2020. For bachelor's degrees in data analytics, the 2020, 2021, and 2022 numbers are 325, 455, and 767, respectively. The number of bachelor's degrees in statistics also grew, albeit more modestly than in prior years: 5,408 in 2022, a 2 percent increase over 2021, as shown in Figure 1. A 15 percent drop in the number of master's degrees in statistics to 3,570 in 2022, also observed in that figure, stood out in the most recent release as well.



Departments contacted by the ASA about the drop in master’s degrees awarded in 2022 by their departments (relative to 2021) attributed the decline generally to drops in applications and enrollment due to the pandemic. We also heard of declining interest from Chinese students due to changing job opportunities and work visa availability. The introduction of closely related degree programs was also suggested as a possible reason for the drop in master’s degrees in statistics.

Master’s degrees in biostatistics awarded in 2022 held steady at 916, compared with 917 in 2021, while PhDs in biostatistics increased from 222 in 2021 to 272 in 2022, surpassing 250 for the first time (Figure 2). The large increase in PhDs is largely attributable to pandemic delays and was observed across STEM fields. PhDs in statistics increased from 467 to 539 for that period. Focusing on master’s degrees in data science, analytics, and related fields—which the ASA has been tracking for years—the jumps in the two NCES Classification of Instructional Programs (CIP) codes introduced for the 2019–2020 academic year for data science (30.70) and data analytics (30.71) are the most dramatic, each increasing by more than a factor of 4, as shown in Figure 3. The number of universities awarding those degrees more than doubled. See Figure 4 and Table 1.

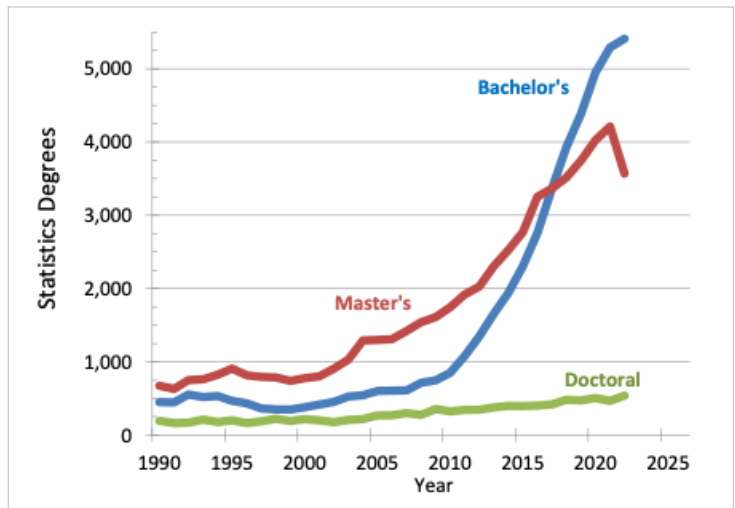


Figure 1: Statistics degrees by degree level awarded in the United States

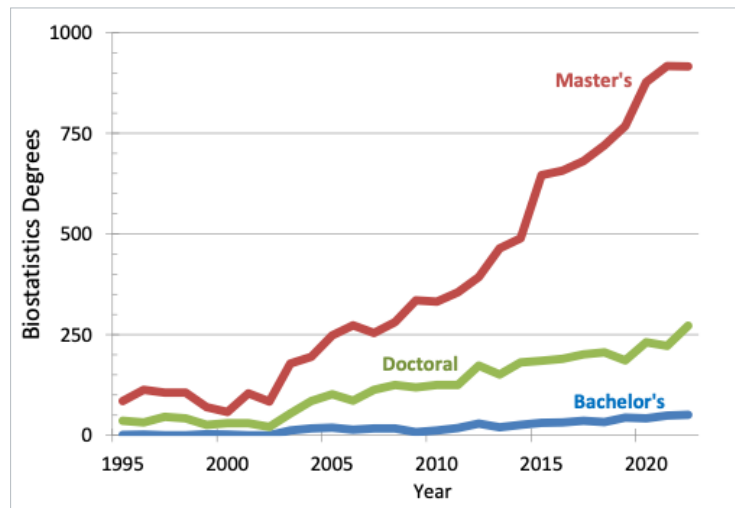


Figure 2: Biostatistics degrees by degree level awarded in the United States

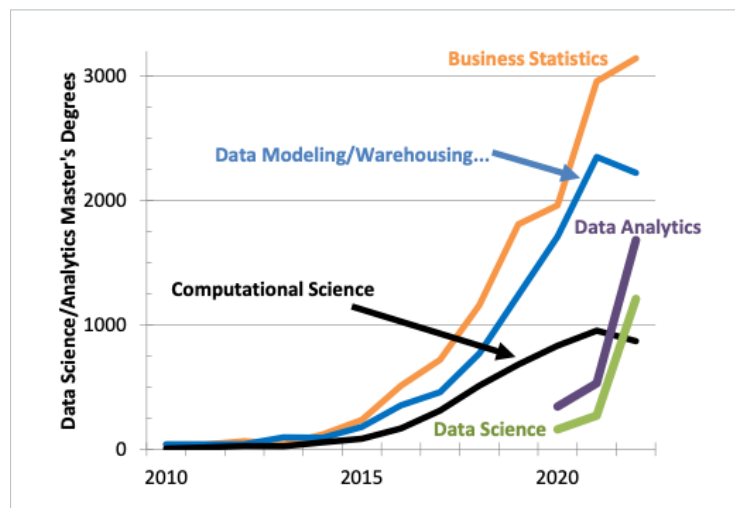


Figure 3: Master’s degrees awarded from 2010–2022 for three CIP categories commonly used by new data science/analytics programs. The graph also shows the number of master’s degrees awarded in 2020, 2021, and 2022 using the new CIP codes for data analytics and data science.

Table 1: Number of Master’s Degrees in Data Science, Analytics, and Related Fields for 2010–2022 and Number of Universities Awarding Them

| Master’s Degrees | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Business Statistics | 37 | 38 | 65 | 41 | 119 | 236 | 511 | 720 | 1159 | 1809 | 1961 | 2958 | 3143 |
| # universities granting | 4 | 5 | 5 | 6 | 8 | 12 | 17 | 26 | 29 | 42 | 45 | 55 | 62 |
| Data Modeling/ Warehousing & Database Administration | 39 | 39 | 40 | 96 | 93 | 180 | 353 | 459 | 770 | 1241 | 1709 | 2350 | 2222 |
| # universities granting | 1 | 1 | 2 | 2 | 3 | 6 | 10 | 15 | 21 | 26 | 28 | 32 | 31 |
| Computational Science | 5 | 15 | 26 | 24 | 56 | 84 | 168 | 311 | 511 | 682 | 832 | 953 | 869 |
| # universities granting | 1 | 3 | 5 | 4 | 9 | 9 | 16 | 16 | 25 | 33 | 37 | 34 | 43 |
| Data Science | | | | | | | | | | | 160 | 271 | 1208 |
| # universities granting | | | | | | | | | | | 13 | 17 | 41 |
| Data Analytics | | | | | | | | | | | 344 | 530 | 1681 |
| #universities granting | | | | | | | | | | | 15 | 20 | 49 |
| Total (degrees) | 81 | 92 | 131 | 161 | 268 | 500 | 1032 | 1490 | 2440 | 3732 | 4846 | 6791 | 7915 |
| Total (universities granting) | 6 | 9 | 12 | 12 | 20 | 27 | 43 | 57 | 75 | 101 | 125 | 141 | 185 |

*Data science and data analytics were added as new categories for the 2019–2020 academic year by the NCES.

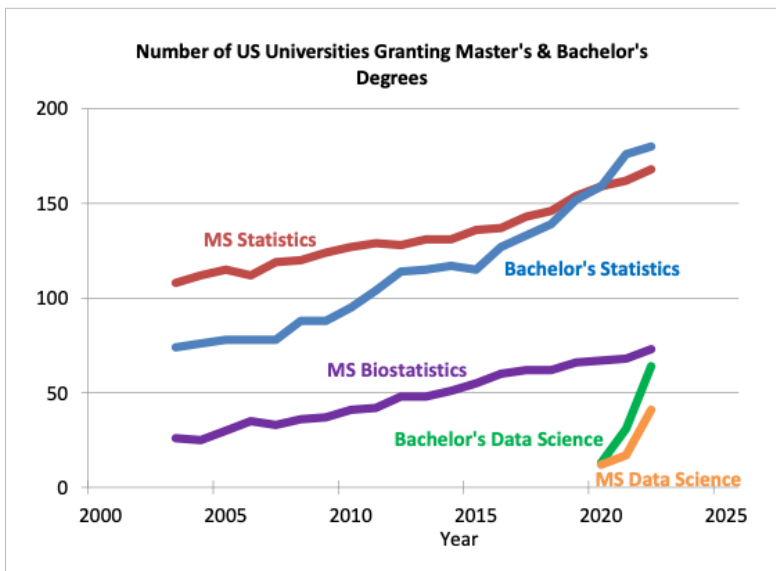
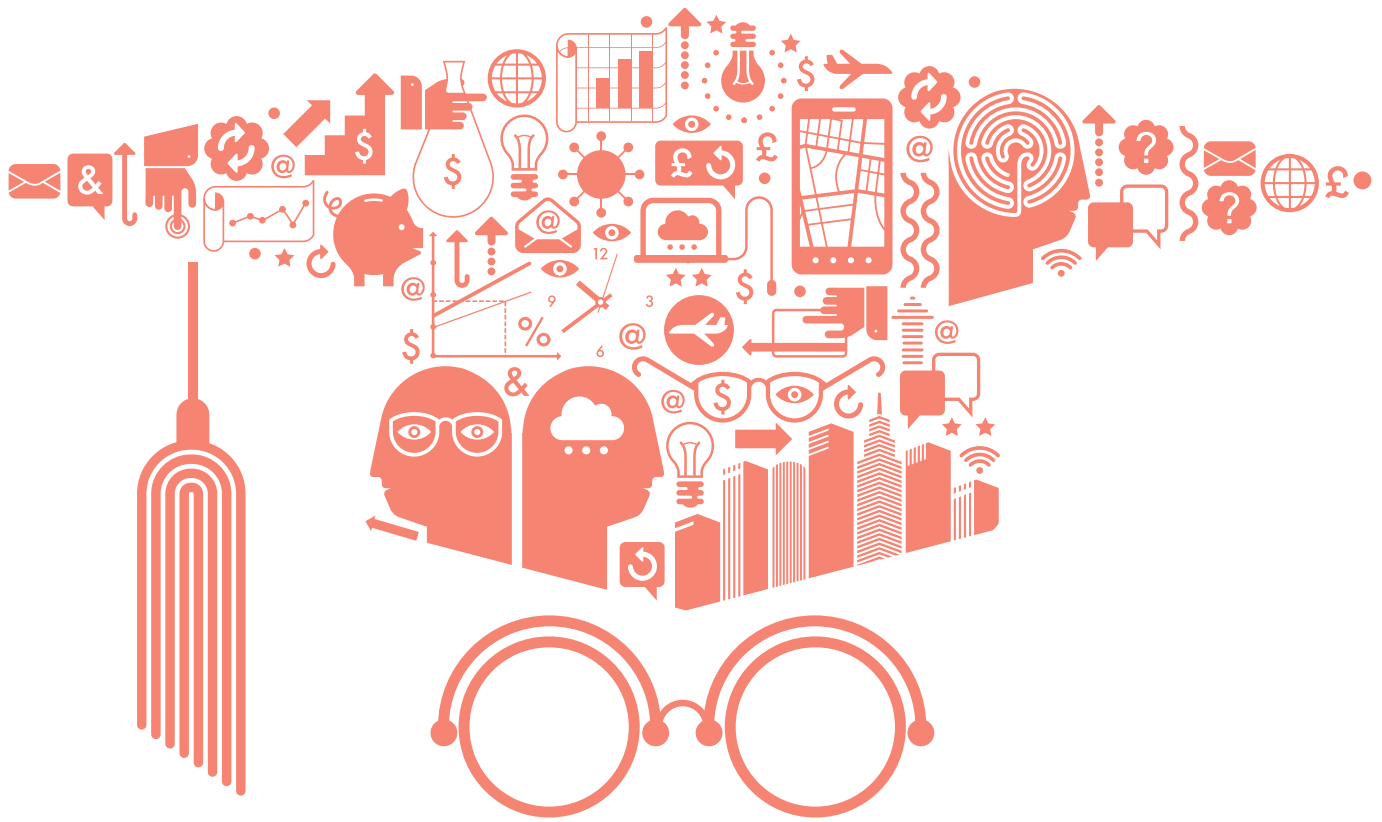


Figure 4: The number of universities granting statistics, biostatistics, and data science master’s and bachelor’s degrees. Compiled from NCES IPEDS data.

Prior to the introduction of the data science and analytics CIP codes, the ASA used three other CIP codes as a proxy to track the growth of such master’s programs: business statistics; data modeling/warehousing and database administration; and computational science. As also seen in Figure 4, the number of degrees in business statistics grew modestly in 2022, while the other two saw declines, likely for the same reason as for master’s degrees in statistics. As shown in Table 1, however, the number of universities awarding master’s degrees with these three CIP codes increased considerably.



As also shown in Figures 4 and 5, the number of universities awarding bachelor’s, master’s, and doctoral degrees in statistics and biostatistics generally increased from 2021 to 2022. The exception is PhDs in statistics, for which the number of universities went from 75 in 2021 to 74 in 2022. Seven universities granted biostatistics degrees at the bachelor’s level in 2022, which is not included in the graphs.

The 2022 NCES completion data release also marked the first conferring of PhDs in data science, 10 from Worcester Polytechnic Institute and three from Kennesaw State University. Kennesaw also conferred PhDs in data analytics in 2020 (7), 2021 (1), and 2022 (2). The lists of universities awarding other degrees covered in this article are available at <https://bit.ly/3sewX2V>, along with related information.

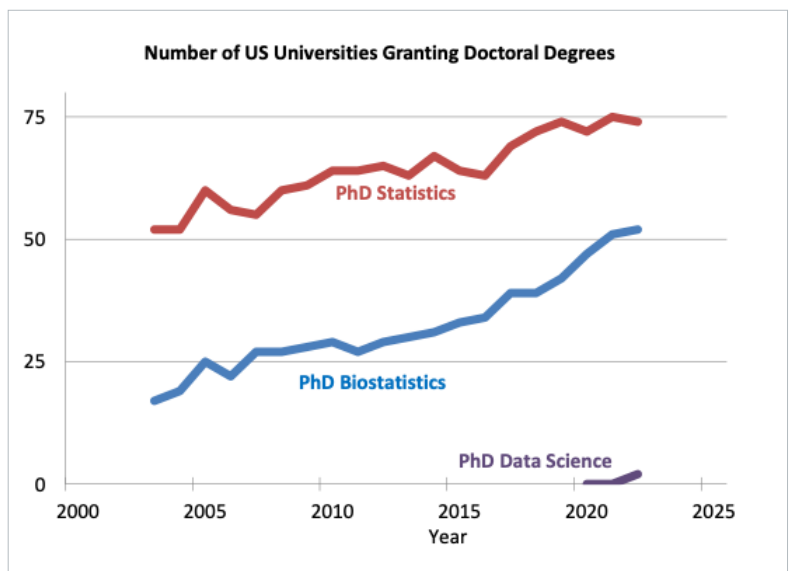


Figure 5: The number of universities granting statistics, biostatistics, and data science PhDs. Compiled from NCES IPEDS data.

Tables 2–6: Top Five Universities Granting Statistics and Biostatistics Degrees for 2018–2022

| Statistics Bachelor's | 2018 | 2019 | 2020 | 2021 | 2022 | 2018-2022 | 2003-2022 |
|------------------------------|-------------|-------------|-------------|-------------|-------------|------------------|------------------|
| University of Illinois UC | 229 | 315 | 335 | 396 | 333 | 1608 | 2393 |
| UC Santa Barbara | 145 | 158 | 211 | 261 | 291 | 1066 | 1507 |
| UC Davis | 179 | 195 | 197 | 239 | 239 | 1049 | 1678 |
| Purdue University | 197 | 176 | 195 | 198 | 212 | 978 | 2169 |
| UCLA | 157 | 167 | 237 | 187 | 228 | 976 | 1517 |
| Subtotal | 907 | 1011 | 1175 | 1281 | 1303 | 5677 | 9264 |
| Total | 4030 | 4536 | 5145 | 5532 | 5650 | 24893 | 45091 |

| Statistics Master's Degrees | 2018 | 2019 | 2020 | 2021 | 2022 | 2018-2022 | 2003-2022 |
|------------------------------------|-------------|-------------|-------------|-------------|-------------|------------------|------------------|
| Columbia University | 454 | 560 | 521 | 594 | 266 | 2395 | 5897 |
| University of Chicago | 155 | 139 | 181 | 220 | 276 | 971 | 1478 |
| New York University | 74 | 104 | 170 | 168 | 161 | 677 | 811 |
| University of Michigan | 119 | 114 | 120 | 141 | 98 | 592 | 1257 |
| Rutgers University | 124 | 111 | 83 | 87 | 60 | 465 | 1415 |
| Subtotal | 926 | 1028 | 1075 | 1210 | 861 | 5100 | 10858 |
| Total | 3515 | 3747 | 4025 | 4211 | 3570 | 19068 | 48299 |

| Biostatistics Master's Degrees | 2018 | 2019 | 2020 | 2021 | 2022 | 2018-2022 | 2003-2022 |
|---------------------------------------|-------------|-------------|-------------|-------------|-------------|------------------|------------------|
| Columbia University | 84 | 99 | 124 | 115 | 119 | 541 | 983 |
| University of Michigan | 49 | 50 | 61 | 47 | 38 | 245 | 666 |
| Emory University | 30 | 46 | 59 | 47 | 34 | 216 | 421 |
| Harvard University | 28 | 43 | 25 | 37 | 43 | 176 | 420 |
| Boston University | 25 | 28 | 26 | 42 | 45 | 166 | 543 |
| Subtotal | 216 | 266 | 295 | 288 | 279 | 1344 | 3033 |
| Total | 729 | 779 | 888 | 929 | 922 | 4247 | 10091 |

| Statistics PhDs | 2018 | 2019 | 2020 | 2021 | 2022 | 2018-2022 | 2003-2022 |
|---------------------------------|-------------|-------------|-------------|-------------|-------------|------------------|------------------|
| North Carolina State University | 25 | 23 | 26 | 18 | 29 | 121 | 379 |
| Iowa State University | 27 | 19 | 18 | 12 | 19 | 95 | 277 |
| Florida State University | 18 | 16 | 15 | 17 | 19 | 85 | 177 |
| University of Wisconsin | 17 | 19 | 15 | 16 | 16 | 83 | 274 |
| University of Michigan | 9 | 14 | 18 | 12 | 11 | 64 | 195 |
| Subtotal | 96 | 91 | 92 | 75 | 94 | 448 | 1302 |
| Total | 482 | 474 | 505 | 467 | 539 | 2467 | 7372 |

| Biostatistics PhDs | 2018 | 2019 | 2020 | 2021 | 2022 | 2018-2022 | 2003-2022 |
|----------------------------------|-------------|-------------|-------------|-------------|-------------|------------------|------------------|
| University of North Carolina | 17 | 12 | 19 | 17 | 22 | 87 | 275 |
| U of Texas Health Science Center | 19 | 12 | 15 | 14 | 13 | 73 | 187 |
| University of Michigan | 15 | 12 | 11 | 17 | 17 | 72 | 225 |
| Harvard University | 16 | 19 | 9 | 17 | 8 | 69 | 234 |
| University of Washington | 5 | 12 | 17 | 8 | 6 | 48 | 181 |
| Subtotal | 72 | 67 | 71 | 73 | 66 | 349 | 1102 |
| Total | 206 | 186 | 231 | 222 | 272 | 1117 | 3139 |

These and related data—including the universities awarding master's degrees in business statistics—can be accessed at <https://bit.ly/3sewX2V>.

The following 15 universities granted statistics and biostatistics degrees for the first time (at least since 2003) in 2022:

- **Bachelor's degrees in statistics** (10): Arkansas Tech University; Coastal Carolina University; Connecticut College; Cornell College; Graceland University-Lamoni; Illinois Institute of Technology; Northwestern College; Pennsylvania Western University; United States Military Academy; University of Lynchburg.
- **Master's degrees in statistics** (4): Arkansas State University; Grand Canyon University; Grand Valley State University; University of Texas Rio Grande Valley
- **PhD in statistics** (1): University of Central Florida

For 2020–2021, there were 31 universities awarding such degrees for the first time.

The top degree-granting institutions over the last five years are in tables 2–6 for all categories except biostatistics bachelor's degrees.

Demographics

Following our practice of alternating demographics updates, this year we look at the breakdown of degrees earned by men and women. Last year's update, which was based on 2021 degree data, had figures for the percentage of statistics and biostatistics degrees earned by nonresident aliens and race and ethnicity data for the degrees granted to US citizens or residents. The file with the race/ethnicity data at the URL above has been updated with the 2022 data.

Figures 6–7 show the percentage of degrees earned by women over time by degree level for statistics and biostatistics. The percentage of women earning biostatistics master's degrees is around 60 percent and 50% for PhDs. The percentage of statistics PhDs earned by women has been 36–37 percent the last several years. For bachelor's and master's degrees in statistics, the percentage is 42–43 percent for 2022. ■

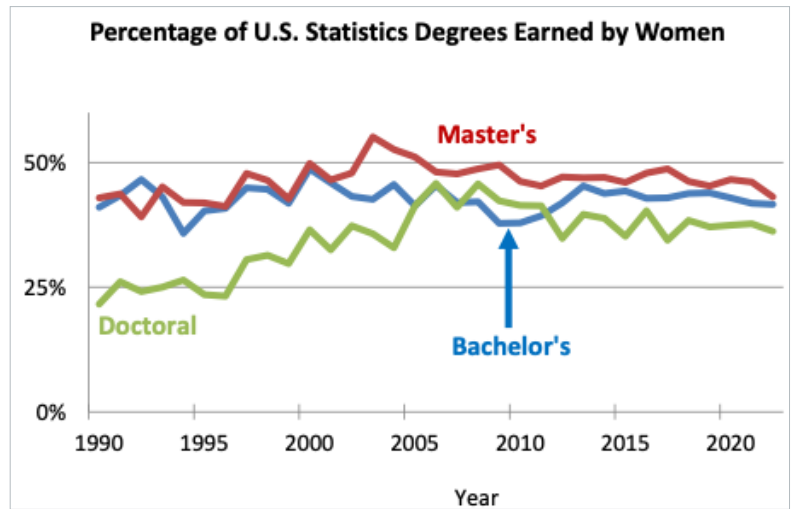


Figure 6: Percentage of statistics degrees awarded to women by degree level for 1990–2022. Data Source: NCES IPED.

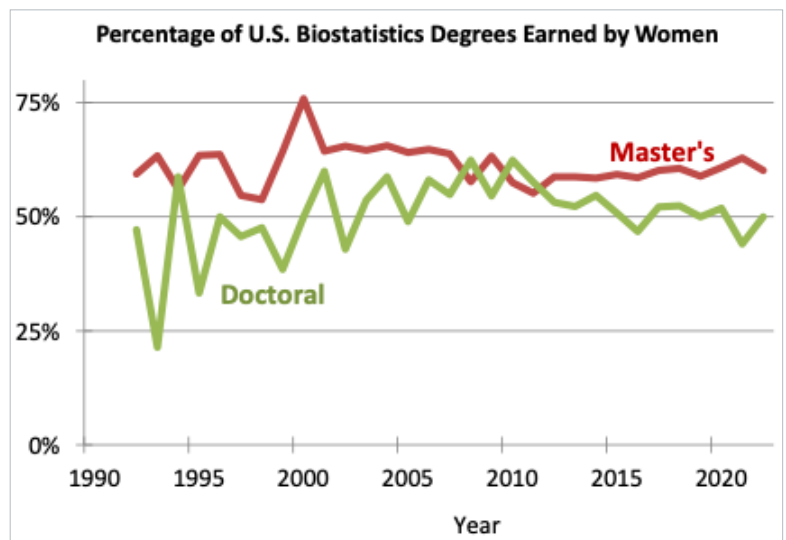
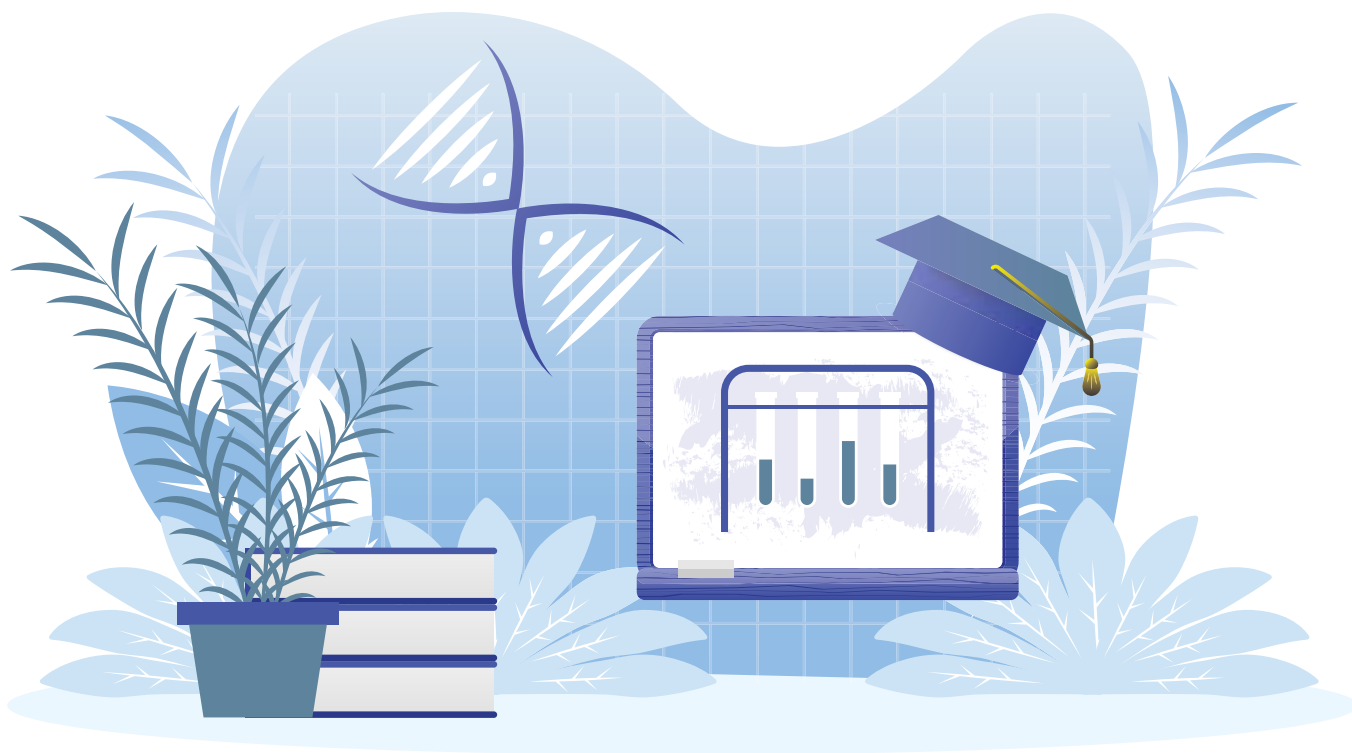


Figure 7: Percentage of master's and PhD biostatistics degrees awarded to women for 1992–2022. Data Source: NCES IPED.



STATtr@k

Reflections on the Transition from Master's to PhD Biostatistician

Linda J. Harrison and Dustin J. Rabideau

Being a biostatistician is a rewarding experience. Working at the intersection of math, biology, health care, and data science, a biostatistician applies rigorous mathematical and scientific thinking to solve real-world problems in medicine and public health. Biostatisticians have diverse careers collaborating with scientists across a range of disciplines on research study design and data analysis. According to the National Center for Education Statistics (<https://magazine.amstat.org/blog/2022/12/01/statsbiostatsdegree>), more people are choosing to pursue and advance careers in biostatistics and health data science.

Many professional positions in biostatistics require at least a master's degree in the subject. A supportive environment and access to opportunities in varied research projects allow for an energizing lifelong career. We both had incredible experiences working as master's-level biostatisticians for several years in collaborative biostatistical

centers and benefitted from research experience that enabled independent work and self-initiated projects. The next step we took to access further professional growth in the academic setting was to pursue PhDs in biostatistics.

Choosing to leave your rewarding job to spend about five years as a student can be a difficult decision. Not only is there typically a considerable pay cut, there is also the humbling experience of retaking coursework you perhaps once grasped but now need to grasp again to thrive in the methodological arena, which is the focus of many biostatistics PhD curricula. Nonetheless, a deeper understanding of technical concepts and an inherent statistical intuition are ingrained during the PhD program. The PhD dissertation component provides an excellent opportunity to dedicate focused time to a research topic of interest—an experience we both found fulfilling. Yet, the educational journey does not end there. Once a PhD

is completed, the transition back into the collaborative work environment begins.

After completing our PhDs, we both chose to return to our previous biostatistical centers. This presented unique challenges that a transition to another organization may not have had. First, the potential career trajectory of a PhD-level biostatistician in the academic setting is different than that of a master's-level biostatistician. For us, this meant former colleagues now viewed us (or needed to be encouraged to view us) through a different lens. This took some getting used to.

Although much of our day-to-day work felt familiar, it was difficult to not return to collaborative work that had moved on in the five or so years it took us to complete PhDs, though new opportunities presented themselves. We took on more administrative leadership responsibilities within our centers and more of a scientific leadership role in our collaborative research projects. Though uncomfortable at times, we found it important—and ultimately fulfilling—to embrace these fresh opportunities with a positive, confident, and head-first attitude.

The transition from master's- to PhD-level biostatistician required us to establish new collaborative relationships in new medical areas and build our research interests again. This was enlightening, since when you develop a research path for a second time, you have different interests. More varied prospects present themselves, and you are more confident in your statistical thinking. One of the benefits of being a biostatistician in a collaborative environment is the diverse range of scientific areas you encounter, so your skill set and knowledge base is continuously diversified and enhanced.

Here are some reflections and tips for others who may be working with a master's degree and considering a PhD, studying for a PhD after considerable work experience, or transitioning to positions after a PhD, especially those returning to their prior institutions:

- The more you research, study, and find yourself in different roles, the more you learn, and the more aware you are of what you don't know. This can be a discomfiting part of being a biostatistician yet an integral part of research.
- Try to take classes while you are a master's-level biostatistician and, upon your return to work after completing a PhD, try to take or teach classes. Taking classes before your

Interested in Learning More?

Statistics, Biostatistics Degree Growth Continued in 2021 (<https://bit.ly/49OVCw7>)

Thriving as a Master's-Level Statistician (<https://bit.ly/3SB73RL>)

What to Ask About Graduate School in Biostatistics (<https://bit.ly/40KzXB2>)

PhD will prepare you for PhD coursework and help with the transition back to school. Taking and teaching classes after the PhD allow you to use your PhD skill set, which can ease the transition back to a collaborative work environment.

- Biostatistics requires both painstaking, detail-oriented, and focused work and big-picture thinking about research ideas. Somewhere along the way, the balance will be off (e.g., your simulation code is off by a tiny detail, and you can't figure out where, or your simulations run successfully, but you have no idea if the results answer an interesting question). Getting the balance right comes and goes, and persistence is key.
- When beginning new collaborations, especially those in new medical areas, indulge your curiosity. Ask many questions, even if they appear trivial or completely unrelated to statistical considerations. The deeper you dive into your collaborators' field, the more enjoyment and success you'll find in the research partnership.
- As administrative, leadership, and supervisory responsibilities increase, be sure to maintain regularly scheduled time to exercise your statistical and technical abilities. Set aside protected time each day or week to think about statistical theory, write code for an analysis, or read that statistics paper that's been sitting on your desktop for months.
- Last, have confidence in your chosen path. In different roles, others may perceive you differently, which has its advantages and disadvantages. Finding the advantages takes an evolving positive outlook on the opportunities you have. ■



Linda J. Harrison is a research scientist at the Center for Biostatistics in AIDS Research within the Harvard T.H. Chan School of Public Health. She holds a bachelor's degree in mathematics from Oxford University and a master's degree in medical statistics from the London School of Hygiene and Tropical Medicine.



Dustin J. Rabideau is the associate director of biostatistics and strategic initiatives at Massachusetts General Hospital and an assistant professor of medicine at Harvard Medical School. He holds a bachelor's degree from the State University of New York College at Geneseo and a master's degree in biostatistics from Harvard. He spent four years at Massachusetts General Hospital before returning to Harvard to pursue a PhD in biostatistics.

2024

STATS4GOOD

Data for Good: The Year in Review and 2023 Challenge Winners



David Corliss is the principal data scientist at Grafham Analytics. He serves on the steering committee for the Conference on Statistical Practice and is the founder of Peace-Work.

This has been an amazing year in Data for Good, with outstanding accomplishments in many areas. Statisticians and data scientists across the analytic spectrum have taken on the most important challenges facing us and our world. The importance of analytics in addressing these concerns cannot be overstated, and the growing D4G community rises to meet them in an ever-increasing number of ways.

This year will be remembered as the year large language models came of age, putting ethical use of artificial intelligence at center stage. Ethical best practices in statistics, machine learning, and AI have long been of concern to the analytic community, and the ASA has played a leading role in establishing best practices. In the past year, as large language models have gone mainstream, the public has become more aware of the need for a solid ethical foundation for statistical practice. In response, new ethical AI groups have sprung up all around.

As Data for Good leaders, we need to be foremost in raising concerns about use, data security, and fairness and finding answers to these concerns. With this larger, more public role, Data for Good has become more than analytic projects serving humanity and, as ethical scientists, we share a commitment to serving the public on matters of ethical practice—informing, advocating, and guiding the development of statistical science as a pillar of modern society for the benefit of all.

We also saw tremendous accomplishment and growth for the ASA Justice, Equity, Diversity, and Inclusion (JEDI) Outreach Group. Since its launch, JEDI has bloomed into a Data for Good powerhouse! JEDI Corner has become the place for JEDIs to keep up to date on events, research, and opportunities. JEDI-sponsored sessions at JSM expand every year, each inspiring further research, opening up new areas and applications, and welcoming a wider audience. Plans are in

Getting Involved

Opportunities this month feature getting ready for JSM 2024 in Portland, Oregon. Proposals for contributed abstracts are due February 1 (<https://bit.ly/3sroYjg>). There are also JSM competitions for students and recent graduates from the Lifetime Data Science Section (<https://community.amstat.org/lids/home>) and Government Statistics, Survey Research Methods, and Social Statistics sections (<https://bit.ly/3QWslTc>).

Submissions for both competitions are due December 15. These are great opportunities to show off your work in Data for Good, meet others working in the same area, and garner feedback.

the works for even more in 2024, so be sure to read JEDI Corner to keep up with new opportunities in Data for Good.

In January, Stats4Good highlighted a group of issues as top priorities for the D4G community in 2023. It is now my great pleasure to recognize outstanding accomplishments this year in each of the five areas:

- **Biostatistics Challenge: Leveraging COVID Learnings.** The recognition honors Bhramar Mukherjee and her team at the University of Michigan, whose modeling of the development of COVID in India will help track and forecast future epidemics. Mukherjee was honored with the ASA's Karl E. Peace Award for Outstanding Statistical Contributions for the Betterment of Society for this work.
- **Environmental Advocacy: Climate Change Impacts and Remediation.** This recognition is given to the NASA Data Resources for Climate Change website (<https://go.nasa.gov/47jmany>), a treasure trove of data supporting an endless list of use cases in the analysis of climate change. For statisticians and data scientists in environmental advocacy—or someone new, such as a student looking for a first project in D4G—this website is a must on your bookmark list.
- **The 2023 Data for Good Challenge in Data.** The 2023 challenge honor for data research goes to Felipe Aros-Vera from Ohio University for his work on human trafficking using Multiple System Estimation (<https://bit.ly/47uTdEG>).
- **Data for Good Organization and Infrastructure.** This recognition goes to Eric Vance for leading the Laboratory for Interdisciplinary Statistical Analysis (www.colorado.edu/lab/lisa) program at the University of Colorado. The program has long been a leader for developing collaborations with nonstatisticians, empowering statisticians and data scientists to take a leading role in projects driving better outcomes for society with statistics.
- **Human Rights.** This year's recognition goes to Stephanie Cook of New York University for her outstanding work as a statistician with NYU's Critical Race Digital Studies program (<https://bit.ly/3unsBqL>). ■

Abstract Submission Underway for JSM 2024

Debashis Ghosh, 2024 JSM Program Chair



JSM 2024 will be held in Portland, Oregon, from August 3–8. The theme is “Statistics and Data Science: Informing Policy and Countering Misinformation,” which emphasizes the policymaking and information dissemination goals central to statistics and data science.

The program committee put together 166 invited sessions, including paper and panel sessions. Here is a sampling:

- Statistical Literacy in the Era of ChatGPT
- Reducing Barriers to Teaching Novice Learners How to Code
- Recent Advances in Trustworthy Reinforcement Learning
- Statistical Solutions in Pursuit of Sustainable Development
- Toward a Common Framework for Use of Real-World Evidence in Drug Development
- Data-Driven Enhancement of Diversity in Clinical Trials: Making Clinical Trials Equitable to ALL
- Preserving Scientific Freedom and Human Rights: Defending Ethical Conduct in Statistics
- Trustworthy Data Sciences

In addition to these sessions, participants will find presentations about modern statistical learning methods/artificial intelligence, precision medicine, -omics research, causal inference, network analysis, survey statistics, Bayesian methodology, and other advanced statistical methods and theoretical advances in statistics.

Many strong proposals were not selected due to the competitive selection process. We had more than 300 submissions for invited proposals, which brings me to the following points:

- Even though we have 166 invited sessions, many of these are preassigned (e.g., Institute of Mathematical Statistics award lectures, ASA journal editors’ invited sessions, the Elizabeth Scott Award Lecture). I estimate the acceptance rate to be 25 percent.
- The program is organized by the 2024 JSM program committee, which represents the ASA sections, committees, and partner societies. Each representative has a certain allocation of slots and reviews session proposals that list their section, committee, or partner society as the primary sponsor. Members of the program committee did a good job exchanging proposals when it made sense, as many invited sessions fell under the purview of more than one section or society. There is also variation in how different sections choose their invited sessions.
- Every section could nominate two sessions for the invited program. From that pool, we selected 25 sessions.
- The program committee prioritized sessions that aligned with the theme, “Statistics and Data Science: Informing Policy and Countering Misinformation.” Proposals that made a strong case for how they aligned with the theme tended to get higher weighting in the review process.
- While JSM does have a “one speaker, one session” rule, a challenge the committee had to deal with was seeing people listed on several invited session proposals. We tried to

Call for Volunteers: Session Chairs

The success of JSM requires participation from the statistics community, and each JSM session requires a chair. Chair responsibilities include contacting speakers with session information before JSM, introducing speakers, and managing presentation time during the session. Chairing a session is a great way for researchers who are new to the profession to build a professional network and get involved with JSM. Contact the program committee member of your section or society, which you can find at ww2.amstat.org/meetings/jsm/2024/programcommittee.cfm.

be equitable and fair with this to the extent we could.

We are now reviewing topic-contributed session proposals. In the event your proposal is not selected for an invited or topic-contributed session, there are still ways to get involved in the 2024 JSM program.

Speed Sessions

Speed sessions allow for an electronic poster (e-poster) presentation, which enables video and other special effects. 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.

The regular 110-minute contributed poster session is divided into two sessions for the speed poster sessions. There is 45 minutes for the 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 are offered to presenters who participate in speed sessions:

- Electronic poster boards, so there is no additional cost or hassle associated with printing or transporting a poster
- Ability to present orally and through an electronic poster

Following are some tips, based on experience with previous speed sessions:

- The oral component should lure people. Don't try to be too detailed, but rather give the big picture view. A little humor helps.
- E-posters can include software demonstrations, analysis animations, videos, and

interactive statistical graphics or dashboards. Take advantage of the versatility of the medium. Don't think in terms of a static poster. Be modern and daring.

- When you submit your contributed abstract, simply select "Speed" as the sub-type.

Poster Sessions

Poster sessions permit extended face-to-face discussion with individuals or small groups. Advantages are direct feedback and the ability to display extensive graphical or tabular materials, possibly in addition to a handout.

Contributed Paper Sessions

Nearly half of JSM sessions are contributed, which 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 1, 2024, and a decision about acceptance will be made by April 1, 2024.

Abstract Submission

To contribute to the JSM 2024 program, submit an abstract and title by February 1, 2024, at ww2.amstat.org/meetings/jsm/2024/submissions.cfm#abstracts. As part of the submission process, speakers must also specify the choice of the ASA section or JSM partner society most closely associated with the topic of their presentation. The system will be reopened for abstract editing from April 1–May 31, 2024.

For details, visit ww2.amstat.org/meetings/jsm/2024/submissions.cfm#abstracts. Contact JSM 2024 Program Chair Debashis Ghosh at debashis.ghosh@cuanschutz.edu with any questions. ■



Save the Date!

- Short courses
- Introductory overview lectures
- Invited sessions
- Topic-contributed sessions
- Contributed sessions
- Speed sessions
- Software demonstrations

Exploring Perspectives in Establishment Statistics

PARTICIPATE

Contributed Abstract & Software
Demo Proposal Submission
Closes January 15, 2024

ATTEND

Early Registration
February 15–April 14, 2024

Regular Registration
April 15–June 20, 2024

Join us at Glasgow Caledonian University!

Join participants from all over the world in Glasgow, Scotland—famous for its art, architecture, and culture—to discuss emerging issues and improved techniques related to business, farm, and institution data. Topics will include statistical techniques, survey methods, and emerging technologies and feature data from sources such as censuses, sample surveys, and administrative records.

Participation is open to all who are interested in establishment surveys, which is typically those in academia or at national statistical institutes, private businesses, and statistical organizations. Whether your area of interest is estimation strategies, frame development, questionnaire design, data collection, dissemination, or data visualization, you will find something to like at ICES VII.

**ICES values its truly international character—
plan to gather in Glasgow in 2024.**

Learn more at ww2.amstat.org/meetings/ices/2024.

Scan to learn more!



Learn, Connect, Collaborate at CSP in the Big Easy

The 2024 Conference on Statistical Practice will take place in New Orleans, Louisiana, from February 27–29. The presentations, short courses, tutorials, and plenary presentations will provide an opportunity to learn about the latest statistical techniques, methodologies, and best practices. Additionally, sessions are tailored to all skill levels and interests.

With its focus on the application of statistics to solve real-world problems, CSP brings together hundreds of statisticians, data analysts, researchers, and scientists each year to focus on the following four key themes relevant to those working in the application of statistics and data science in their daily work:

- Career, Professional, and Leadership Development
- Effective Communication
- Implementation and Analysis
- Study Design and Data Management

In addition to sessions, CSP offers free practical computing demonstrations and short courses and tutorials (for an additional fee). Interested in mentoring or being mentored? CSP also offers a mentor-matching system.

Cynthia Rudin will give the keynote presentation, “Simpler Machine Learning Models for a Complicated World.” Rudin is the Earl D. McLean Jr. Professor of Computer Science, Electrical and Computer Engineering,



Steven Barnett discusses his poster, “Drivers of Flood-Induced Relocation Among Coastal Urban Residents: Insight From the US East Coast,” during the Conference on Statistical Practice in San Francisco, California.

Olivia Brown/ASA

Statistical Science, Mathematics, Biostatistics, and Bioinformatics at Duke University. She directs the Interpretable Machine Learning Lab with the goal of designing predictive models people can understand. Her lab applies machine learning in areas such as health care, criminal justice, and energy reliability.

Ji-Hyun Lee, ASA president-elect, will moderate the closing

session and—with the help of the audience—consider the possibility of establishing a journal devoted to practicing statisticians.

Gain knowledge, connect, collaborate, and experience the “Big Easy” at CSP.

View the CSP program and register at ww2.amstat.org/meetings/csp/2024. Email questions to meetings@amstat.org. ■

ASA AWARDS & RECOGNITION

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



RESEARCH



STUDENT
SCHOLARSHIPS



CONSULTING



SERVICE
to the association or profession



TEACHING

Nominate Someone Today!
www.amstat.org/awards

Many ASA sections and chapters offer their own awards.
Visit the section and chapter websites to view their offerings.



2024 Internships

The following companies are looking for interns in 2024. If you are interested in learning new techniques, improving your data analysis skills, and developing teamwork and leadership abilities, apply for one of these opportunities.

If your organization would like to include an internship opportunity on our website, complete the form at <https://bit.ly/3sPaNRw>. Interested students will send a letter of inquiry and résumé directly to the contact and location you list.

Astellas Pharma

Northbrook, Illinois; Remote (from the United States or United Kingdom)

Positions: 3+

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

Deadline: January 26, 2024

Full-time internships are available in the summer for 10–12 weeks. Successful candidates will work 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.

The programming tasks will involve SAS, R, Python, and/or

other statistical software on the UNIX platform.

To be considered, applicants must complete at least two years of graduate-level coursework and work on a dissertation toward a PhD in statistics, biostatistics, mathematics, epidemiology, or related discipline. The applicant must be legally authorized to work in the United States or United Kingdom. In addition, applicants should have good programming skills, as noted above, and good communication skills.

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

AstraZeneca

Gaithersburg, Maryland; Durham, North Carolina; Waltham, Massachusetts

Positions: Multiple, 6–8

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

Deadline: December 29, 2023

AstraZeneca will have multiple full-time summer biostatistics internships lasting 10–12 weeks (May/June to August/September; dates flexible). 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.

Contact: Sara Rydahl-Kim at *sara.rydahl-kim@astrazeneca.com*

Website: <https://bit.ly/46hDqYX>

Biogen

Remote

Positions: 6

Type of Student: PhD

Deadline: February 15, 2024

Our internships are 10–12-week (June to August) summer assignments focused on concrete projects. Throughout the summer, interns have access to specialty programming such as networking lunches, learning and development events, and our Care Deeply Day (a paid volunteer day for community service). Interns also have an opportunity to present a final project at the program's conclusion.

In January of 2024, fill out the form at <https://smrtr.io/gYtk5> to join our Talent Community.

Interns will be required to read and synthesize key methodology papers, efficiently develop simulation code in R or other statistical packages, and explore results in a

MORE ONLINE

Find more internship listings on STATtr@k at <https://stattr.k> at <https://stattr.k> *amstat.org*.



MORE ONLINE

Find more internship listings on STATtrak at <https://stattrak.amstat.org>.

systematic way. A final presentation is expected.

Requirements:

- Experience performing statistical analysis with R, SAS, and other statistical packages
- Knowledge of or interest in the biotechnology industry
- Ability to translate data into business insights
- Legal authorization to work in the US
- 18 years of age prior to the scheduled start date
- Currently enrolled in a PhD program at an accredited college or university
- Completed two years of graduate work and passed doctorate qualification exam prior to the start of the internship
- Returning to school in the fall of 2024
- Majoring in statistics, biostatistics, or a related field

Apply: <https://smrtr.io/gYtk5>

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, 2024

Multiple full-time statistics summer interns sought to join our organization for 12 weeks. You will work with senior-level biostatisticians on statistical methodology and/or applications related to the design and analysis of clinical trials. At the end of the internship, you will present your work. The ideal candidate will have a knowledge of R and

have completed at least two years of graduate-level courses.

There will be rolling interviews.

Contact: Philip He, phe@dsi.com

Apply: <https://forms.office.com/r/0hDamGtySd>

Eli Lilly and Company

Indianapolis, Indiana

Positions: Multiple

Type of Student: PhD

Deadline: January 15, 2024

Responsibilities:

- Operate in collaboration with study personnel to provide input on study protocol, design studies, and write protocols for the conduct of each study
- Assist in or be accountable for selecting statistical methods for data analysis, authoring the corresponding sections of the protocol and statistical analysis plan, and conducting the actual analysis once a reporting database is created
- Introduce and apply innovative methodology and tools to solve critical problems
- Merge scientific thinking and business knowledge to identify issues, evaluate options, and implement solutions
- Lead projects independently

Requirements:

- Enrolled in a graduate-level curriculum leading to a PhD in statistics or biostatistics
- Completed at least three years of graduate work by May, 2024

The internships start in either May or June and last 12 weeks.

Contact: Jaymie Haley, jhaley@lilly.com

Apply: <https://bit.ly/40tkJQC>

Eli Lilly and Company

Indianapolis, Indiana

Positions: Multiple

Type of Student: Master's

Deadline: January 15, 2024

Candidates will be assigned specific projects to work on under the guidance of a Lilly statistician.

Responsibilities:

- Operate in collaboration with study personnel to provide input on study protocol, design studies, and write protocols for the conduct of each study
- Assist in or be accountable for selecting statistical methods for data analysis, authoring the corresponding sections of the protocol and statistical analysis plan
- Collaborate to plan and write data quality assurance plans
- Maintain currency with respect to statistical methodology
- Maintain proficiency in applying new and varied methods
- Participate in peer-reviewed work products
- Influence team members regarding appropriate research methods
- Collaborate with teams to write reports
- Assist with, or be responsible for, communicating study results
- Respond to regulatory queries and interact with regulators
- Understand disease states, competitive landscapes, and regulatory environments
- Perform work in full compliance with assigned curriculum(s) and be responsible for following corporate, medical, local, and departmental policies, procedures, processes, and training

- Introduce innovative methodology and solve critical problems
- Merge scientific thinking and business knowledge to identify issues, evaluate options, and implement solutions
- Lead projects independently
- Apply technical expertise to influence business decisions

Requirement:

Currently enrolled in and attending a graduate-level curriculum leading to a master's degree in statistics or biostatistics. Anticipated graduation by 2025.

Contact: Jaymie Haley, jhaley@lilly.com

Apply: <https://bit.ly/465bdnW>

GSK

Collegeville, Pennsylvania;

Remote

Positions: Multiple

Type of Student: PhD

Deadline: March 1, 2024

We offer either an in-person internship at GSK's Upper Providence, Pennsylvania, center or a fully remote option. Internships will be full-time for 10–12 weeks (May/June to August).

We are seeking people with good technical and communication skills; proficiency in statistical programming languages such as R or SAS; and the ability to learn rapidly, develop practical solutions, and apply statistical techniques in creative ways.

Candidates must be enrolled students seeking their PhD in statistics, biostatistics, or a closely related field and must have completed two years of graduate study. Applications will be considered on a rolling basis until the position is filled.

Contact: Shannon McKearnan, shannon.b.mckearnan@gsk.com

Apply: <http://bit.ly/475paDu>

Johnson & Johnson

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

Positions: 10

Type of Student: Graduate (PhD or Masters) or Undergraduate (Junior or Senior)

Deadline: February 15, 2024

Internships are available for students working toward a degree in statistics, biostatistics, or a related discipline. Undergraduate applicants will be considered.

Students will work with practicing statisticians.

Qualifications:

- Candidates must be enrolled in an accredited college (not necessarily taking classes) and pursuing a degree in biostatistics, statistics, or a related discipline
- Students must be available for 10–12 weeks from May to August and have the ability to work full time
- A minimum 3.0 GPA is preferred

Contact: Bill Pikounis, bpikouni@its.jnj.com

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

The Lubrizol Corporation

Wickliffe, Ohio

Positions: 4 Bachelor's, 4 MS/PhD

Type of Student: Bachelor's, MS/PhD

Deadline: February 10, 2024

The statistics team operates like a start-up company, but with the backing of a large corporation. This empowered and agile team is charged with creating analytics systems that enable highly effective product development via virtual experimentation, optimization, and

knowledge discovery. In addition, the team provides data science consulting services to the Lubrizol technical community throughout the world.

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 and implement new statistical, machine learning, and/or optimization approaches (PhD level)
- Collaborate with data science teams to understand needs and find creative solutions

Contact: Kevin Manouchehri, Kevin.Manouchehri@Lubrizol.com

Apply: MS/PhD: <https://bit.ly/46lHJm9>; Bachelor's: <https://bit.ly/47rrV1N>

Novartis Pharmaceutical Corporation

East Hanover, New Jersey; Cambridge, Massachusetts; Fort Worth, Texas (with hybrid options)

Positions: Multiple

Type of Student: PhD candidates who will have completed at least 1.5 years of course work by June 2024

Deadline: January 21, 2024

Interns will work on quantitative projects under the guidance of experienced scientists and will present their project results.

Multiple internship positions available for 12 weeks in 2024 (May/June to August).

Candidates must be enrolled in a graduate-level program working toward a PhD in biostatistics,

statistics, or related discipline and have completed at least 1.5 years of course work. Competitive candidates must have excellent oral and written communication skills and strong problem-solving skills. Working knowledge of R or SAS—as well as a strong background in NONMEM, Python, and/or other software/languages—is preferred.

Apply: Complete the application form at <https://bit.ly/49zB1eW> and email your CV to internships.analytics@novartis.com

Pfizer

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

Positions: Multiple

Type of Student: Graduate students in statistics, biostatistics, or related fields

Deadline: February 1, 2024

The internship will consist of up to 480 hours of work from May to September. The intern's project will be biomedically oriented, with one-on-one supervision by senior staff statisticians. The work will be hands-on, focusing on current project needs, and involve the use of SAS, R, or other statistical software. The intern will prepare a written report and presentation.

Applicants must have completed at least one year of graduate study by May 2024 and have work authorization in the US.

Apply: <https://app.joinhandshake.com/jobs/8302805>. If you do not have a Handshake account, you will be prompted to create one.

Sanofi US

Bridgewater, New Jersey; Cambridge, Massachusetts

Positions: Multiple

Type of Student: PhD candidate in statistics or biostatistics

Deadline: April 2, 2024

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

Contact and Apply: 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 12, 2024

Interns will develop and hone practical skills in several 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

Interested candidates must be enrolled in an accredited college undergraduate or graduate

program. If undergraduate, candidates must be entering their junior or senior year.

Candidates are accepted from all majors, though statistics, data science, or computer science preferred. 3.0 GPA or above. GPA will be validated by transcripts and communication with the adviser.

Apply: Submit a cover letter and CV/résumé to BiostatIntern@STJUDE.ORG

Website: <https://bit.ly/3QOu1Ue>

StataCorp

College Station, Texas

Positions: 1–3

Type of Student: Graduate

Deadline: March 1, 2024

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.

Statistical software development is a challenging and rewarding career, ideal for those with a graduate education in statistics or related field and a keen interest in using their problem-solving skills.

Job duties may include learning Stata, collaborating on projects suitable for publication in *Stata Journal*, creating support materials, and assisting in adding new statistical features to Stata.

Apply: www.stata.com/internships

Takeda Pharmaceuticals

Cambridge, Massachusetts; Remote

Positions: Multiple

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

Deadline: March 15, 2024

During the 12-week summer internship program, interns will

work with industry statisticians/data scientists/programmers on a variety of topics related to the design and analysis of clinical trials, preclinical research, and/or programming-related projects.

At the end of the internship program, interns will give a presentation summarizing their work.

Candidates must be enrolled in a PhD/MS biostatistics, statistics, or related program. For PhD-level projects, PhD candidates must have passed qualification exams; three or more years of graduate study or post-baccalaureate training is preferred.

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

Contact: biostatistics.intern@takeda.com

Thomas Jefferson University Division of Biostatistics and Bioinformatics

Philadelphia, Pennsylvania

Positions: 3

Type of Student: Undergraduate (junior or senior preferred), master's

Deadline: February 16, 2024

Jefferson's Division of Biostatistics and Bioinformatics will sponsor up to three summer interns, who will do the following:

- Research statistical topics relevant to biomedical research
- Apply statistical thinking to biomedical research problems
- Analyze real-world biomedical data and interpret the results
- Develop statistical programming skills in SAS, R, and other languages
- Develop and practice communication of statistical methods and results through written reports and oral presentations

- Receive guidance regarding their career trajectory
- Work on cutting-edge areas of bioinformatics, including single-cell omics data analysis, systems biology approaches, and machine learning

The internship will run for 8–10 weeks, from June to August. Interns will be paid a stipend, which will depend on academic level, experience, and work schedule.

Applicants may be current students or recent graduates and should have an interest in a career in (bio)statistics, bioinformatics/computational biology, or similar quantitative field.

For undergraduate students (or those with an undergraduate degree), any degree program is acceptable, but applicants should have strong mathematical and analytical skills and at least one course in computer programming.

For graduate students (or those holding a graduate degree), their degree should be in biostatistics, statistics, bioinformatics/computational biology, computer science, or a similar quantitative field.

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

Apply: <https://bit.ly/46lcR4R>

University of Pennsylvania

Philadelphia, Pennsylvania

Positions: Multiple

Type of Student: Undergraduate

Deadline: February 1, 2024

The Summer Undergraduate Internship Program and Summer Undergraduate Minority Research Program are accepting applications for undergraduate students to participate in summer research.

Summer Undergraduate Internship Program

This program is designed to provide an intense research experience for students interested in graduate study in the biomedical sciences. Each intern is matched with a faculty mentor from the biomedical graduate studies program according to the information submitted during the application process.

Interns participate in the investigator's research and perform a supervised research project related to the goals of the research group. Interns also attend seminars.

This 10-week program runs from early June to August. A complete application includes an online application form, a statement of career goals and area of interest, two letters of recommendation, and an official transcript.

Summer Undergraduate Minority Research Program

This program is an initiative by the Leonard Davis Institute of Health Economics and health care management department of the Wharton School to provide underrepresented minority undergraduate students an opportunity to explore the health services research field. The program is open to rising undergraduate sophomores, juniors, or seniors. Participants should have an interest in health care and strong quantitative skills. They do not have to make a commitment in advance to attend graduate school, but an academic or research career should be something they are considering.

Scholars work with a faculty member, gain practical advice about graduate school opportunities, and attend a health services-related conference.

MORE ONLINE

Find more internship listings on STATtrak at <https://stattrak.amstat.org>.

MORE ONLINE
Find full descriptions for these internships on STATtr@k at <https://stattrak.amstat.org>.

The 2024 program will run for 12 weeks, from the end of May to August.

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

Apply: <https://bit.ly/3QyZM2a>

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

Silver Spring, Maryland

Positions: Multiple

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

Deadline: April 15, 2024

Multiple internship positions available for advanced PhD graduate students in statistics or biostatistics starting in May 2024 through September 2024.

Interns will gain hands-on experience with research projects under the guidance of a mentor, using real or simulated data to address statistical problems in a stimulating, collaborative, and supportive environment. Interns have been involved in the development of statistical methods, software tools, and new drug application databases for the analysis of pre-clinical and pre- and post-market clinical data.

Candidates must be legally eligible to work in the US. It is the student's responsibility to obtain the appropriate work authorization, if applicable. As required by current immigration law, an internship offer is contingent upon the student's ability to provide the appropriate documentation to prove work eligibility prior to the start of the internship.

Our program is administered by, and stipends are issued through, the Oak Ridge Institute for Science and Education via its contract to operate with the US Department of Energy. US citizenship is not required.

Requirements

- Solid statistical background in coursework and practical training
- Demonstrated innovation, along with strong problem-solving skills
- Strong computational skills, including experience with SAS and/or R and demonstrated proficiency with MS Office
- Excellent oral and written communication skills
- Ability to work independently and contribute to group and staff discussions

Contact: CDER-OTS-OB-Recruitment@fda.hhs.gov with QUESTION ORISE 2024 in the subject line

Apply: <https://bit.ly/40G8jVx>

Washington University in St. Louis - Institute for Informatics, Data Science, & Biostatistics

St. Louis, Missouri

Positions: 10

Type of Student: Undergraduates interested in informatics, biostatistics, or data science

Deadline: January 15, 2024

Under the guidance of faculty mentors and research scientists, this paid internship allows undergraduate students to gain exposure to the informatics and data science fields. Students selected for the 11-week internship work full-time with faculty mentors.

Students will also complete professional development workshops, attend seminars relating

to informatics and data science research, and participate in the annual symposium, where they will present a scientific poster.

The program begins in May and ends in August. In addition to financial support, the program provides university housing and travel to and from the St. Louis area. Applicants must be eligible to work in the US and enrolled as a full-time student at a US institution with an expected graduation date of December 2024 or later.

Additional program details, including the link to apply, can be found at <https://bit.ly/3SHFYAX>.

Contact: Katie Bay, k.bay@wustl.edu

Weill Cornell Medicine, Cornell University

New York, New York

Positions: 2–4

Type of Student: MS, PhD

Deadline: February 1, 2024

The Mallick Lab at Weill Cornell Medicine and Cornell University will have multiple full-time summer biostatistics internship openings lasting approximately 10–12 weeks (May/June to August/September; dates flexible). As a biostatistics intern, you will work closely with the PI and other Mallick Lab members on multi-omics integration and omics data science.

At the end of the internship, you will be expected to present your work within the division of biostatistics at Weill Cornell Medicine. Candidates must have a good knowledge of R and/or Python, along with excellent communication skills.

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

Contact: Himel Mallick, www.himelmallick.org ■

Census Bureau Offers Postdoctoral Research Programs

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

Postdoctoral research positions are awarded to those who are in the process of receiving 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, 2024.

To apply or learn more, visit the bureau's website at <https://bit.ly/3tP8MbT>. ■

Applications Sought for Census Bureau Dissertation Fellowship Program

The US Census Bureau is accepting applications for its dissertation fellowship program for statistics, survey measurement, and data science.

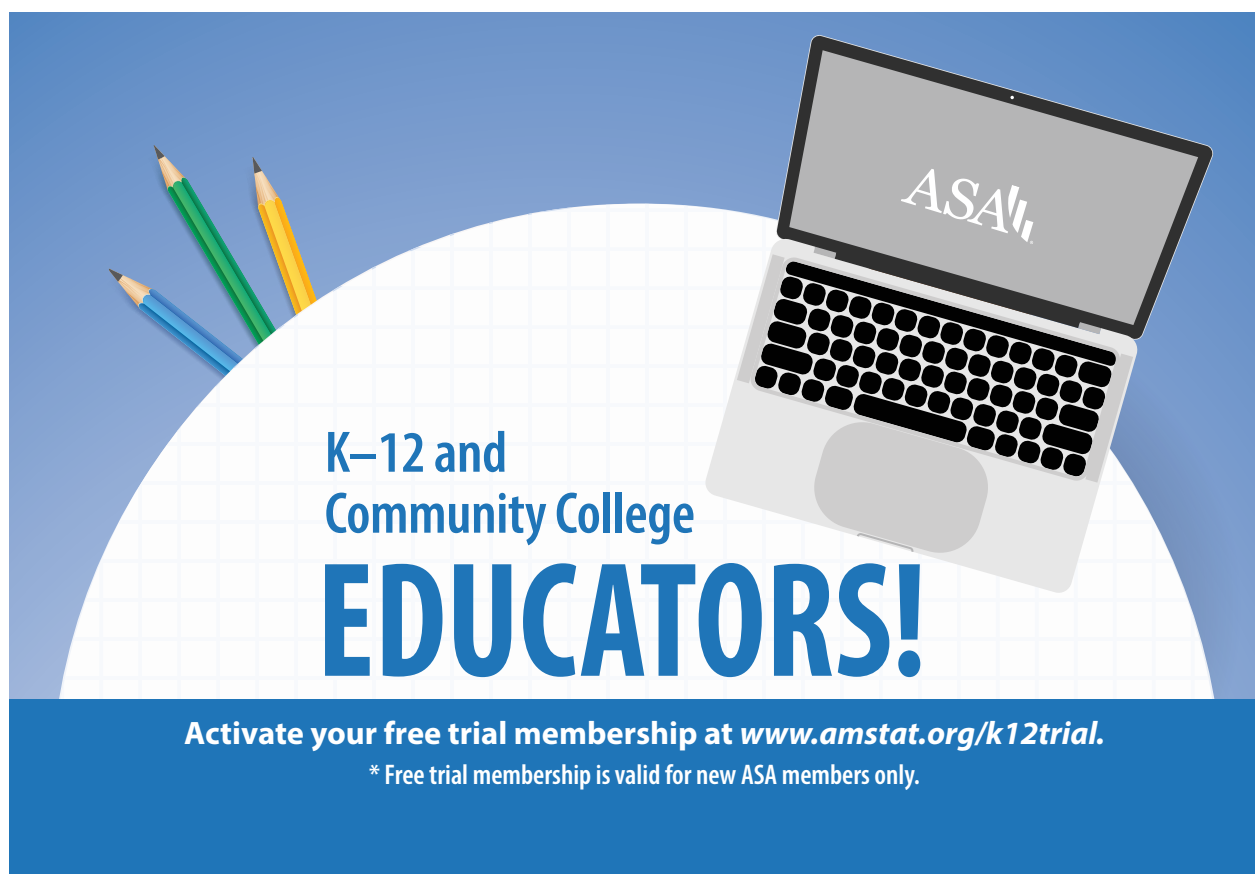
The program offers opportunities for dissertation research that relates to planning, collecting, processing, analyzing,

making inferences, and disseminating data and data products.

The application materials and supporting documents for each dissertation fellow must be submitted by their university. Dissertation fellowships will be awarded to institutions of higher education for doctoral candidates of unusual promise and ability whose fields of research are in statistical theory and methodology, survey measurement methodology, or data science methodology.

Application packages and supporting documents should be submitted by January 31, 2024.

For more information, download the PDF at <https://bit.ly/3FySBSI>. ■



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* Free trial membership is valid for new ASA members only.

Deadlines and Contact Information 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.

MORE ONLINE
Visit <https://bit.ly/3Flepes> to read about all the awards.

| AWARD | DEADLINE | QUESTIONS & NOMINATIONS |
|--|--------------|---|
| Gottfried E. Noether Awards | January 15 | awards@amstat.org |
| Bob Riffenburgh Award | January 15 | awards@amstat.org |
| Karl E. Peace Award | February 1 | awards@amstat.org |
| W. J. Dixon Award for Excellence in Statistical Consulting | February 15 | awards@amstat.org |
| Harry V. Roberts Statistical Advocate of the Year Award | February 15 | awards@amstat.org |
| Waller Awards | February 15 | awards@amstat.org |
| Samuel S. Wilks Memorial Award | February 15 | awards@amstat.org |
| W. J. Youden Award in Interlaboratory Testing | February 15 | awards@amstat.org |
| Statistics in Physical Engineering Sciences Award | February 20 | awards@amstat.org |
| Gertrude M. Cox Scholarship | February 23 | awards@amstat.org |
| Edward C. Bryant Scholarship Trust Fund | March 1 | awards@amstat.org |
| Excellence in Statistical Reporting Award | March 1 | awards@amstat.org |
| Fellows of the ASA | March 1 | awards@amstat.org |
| ASA Mentoring Award | March 1 | awards@amstat.org |
| Outstanding Statistical Application Award | March 1 | awards@amstat.org |
| Statistical Partnerships Among Academe, Industry, and Government (SPAIG) Award | March 1, | awards@amstat.org |
| Annie T. Randall Innovator Award | March 15 | Sherri Rose (sherrirose@stanford.edu) |
| Biopharmaceutical Section Scholarship Award | March 15 | community.amstat.org/biop/awards/scholarship |
| Founders Award | March 15 | awards@amstat.org |
| ASA Pride Scholarship | March 31 | Donna LaLonde (DonnaL@amstat.org) |
| Causality in Statistics Education Award | April 5 | awards@amstat.org |
| Government Statistics Section Wray Jackson Smith Scholarship | May 1 | Nathan Cruze (nathan.cruze@gmail.com) |
| Links Lecture Award | July 1 | awards@amstat.org |
| Dorothy Marie Lamb and Annette Lila Ryne Memorial Scholarship | July 15 | awards@amstat.org |
| Health Policy Statistics Section Achievement Awards | September 15 | asahealthpolicy.org/for-students |
| Lester R. Curtin Award | October 15 | awards@amstat.org |
| Deming Lecturer Award | October 15 | awards@amstat.org |
| Lingzi Lu Memorial Award | October 15 | awards@amstat.org |



Tapabrata (Taps) Maiti
Photo courtesy of NSF

Tapabrata (Taps) Maiti

joined the National Science Foundation Division of Mathematical Sciences this fall as a rotator program director for statistics. Maiti is a foundation professor in the department of statistics and probability at Michigan State University, where he has served as the graduate director of statistics and was the founding codirector for the business and social analytics center. He is also a fellow of the American

Statistical Association, Institute of Mathematical Statistics, and American Association for the Advancement of Science.

Maiti's research highlights skills and expertise in statistical theory and methods with a focus on application to real-life data. His interests include the foundation of statistics and data science and statistical learning theory for large and complex spatiotemporal data with biomedical applications. He has more than 100 publications in interdisciplinary journals and has received federal funding to support his research.

Maiti served on the editorial boards of journals such as the *Journal of the American Statistical Association*, *Statistical Analysis and Data Mining*, *Computational Statistics and Data Analysis*, *Spanish Journal of Statistics*, and *Sankhya*. He travels worldwide, presenting lectures, talks, and workshops and holds academic associations with several universities.

Maiti joins Yong Zeng, Jun Zhu, and Yulia Gel as the statistics program directors. ■

David Allison, ASA member and dean of the Indiana University School of Public Health-Bloomington, was named a 2023 fellow of Sigma Xi. Since 2020, the scientific research honor society has selected peer-nominated scientists in recognition of their exceptional contributions to the scientific enterprise.

Founded at Cornell University in 1886, Sigma Xi promotes excellence in scientific investigation and encourages a sense of companionship and cooperation among researchers in all fields of science and engineering. It counts more than 200 winners of the Nobel Prize among its membership.

Visit <https://bit.ly/3s650KE> to read more about Allison and Sigma Xi fellows. ■



How Can We Help?

We want to help you share your own news with colleagues and showcase your latest successes.

It is important to us that everyone knows about your research, recent awards, and promotions!

If you have any news you would like to share, email megan@amstat.org.

sectionnews

Q&P Executive Committee Outlines 2024 Goals

Mark (Zhongnan) Jin, Section Publications Offer

The Quality and Production Section executive committee met on October 9 to discuss 2024 goals, which will focus on the following four key areas:

Increasing Student and Early-Career Membership

- Restart the Q&P mentorship program. This program connects mentors with mentees to enhance their professional experience through achieving personal and professional goals.
- To encourage student participation, give student/early-career travel awards to attend the Fall Technical Conference. The target is two student and two early-career awards.
- Continue giving student travel awards to the Quality and Productivity Research Conference.
- Continue to co-host a JSM mixer with the Section on Physical and Engineering Sciences and join with other interest groups to reach out to more potential members.

Increasing Nominations for Awards

- Ensure we have a candidate pool for fellow nominations and the Hahn award.

Increasing the Quantity of Invited Session Proposals at Various Conferences

- Advertise for JSM invited session proposals earlier in the year to allow prospective participants more planning time. Provide a clear description of the options for the session if it is not chosen as an invited session.
- Research opportunities to better incentivize (e.g., small travel awards) submissions of invited sessions that choose Q&P as the top sponsoring organization.
- Build a pool of proposals that are not accepted to JSM to consider for other conferences.

Continuing to Improve the Turnover Process for Q&P Executive Committee Members

- Continue to ensure new officers have access to legacy information via an online repository.

For a list of section officers, visit the section's website at <https://bit.ly/3SHWpZr>. ■

JOIN

A **SECTION**
OR **CHAPTER**



EXPAND your professional network and strengthen your relationships in the community



EXPLORE chapter and section leadership opportunities



STAY CURRENT with the different methodologies and applications in your area of expertise

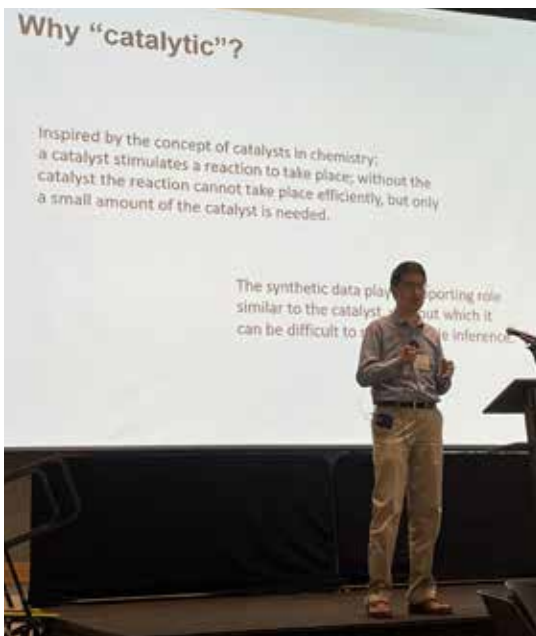
If you've been thinking about joining an ASA section or regional chapter, we have made it easier than ever. With a few clicks, you can add section and chapter membership and pay online.

Chapter and section membership can greatly enhance the value of your membership.

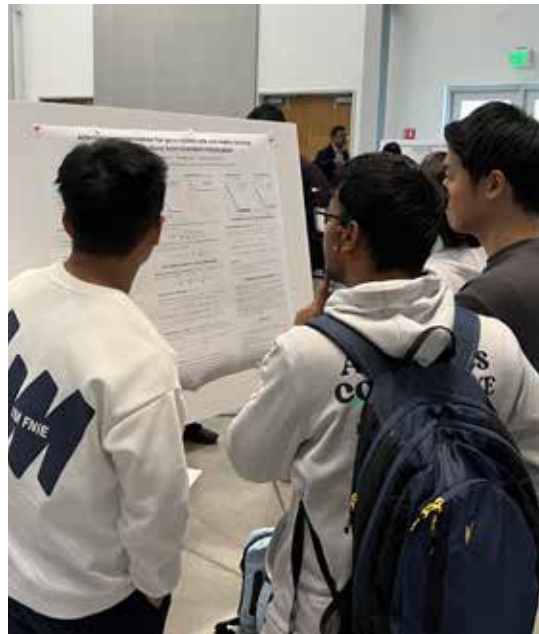
Add section and chapter membership at ww2.amstat.org/membersonly/additems.

chapternews

Georgia Chapter Hosts Statistics Day: A Confluence of Minds



Professor Samuel Kou from Harvard University talks about catalytic prior distribution for Bayesian inference.
Photo courtesy of Peisen Zhao



Students view a poster at the Georgia Tech event.
Photo courtesy of Patrick Tangente

This October, the Georgia Institute of Technology welcomed more than 150 statisticians and data scientists for Georgia Statistics Day 2023, an annual symposium started in 2015 by professor Jeff Wu with the aim of promoting interdisciplinary statistics research among Georgia's academic institutions. This year's symposium surpassed recent years' attendance records.

The event kicked off with welcoming remarks from event organizing committee chair Shihao Yang and Georgia Tech professors Edwin Romeijn and Roshan Joseph, who emphasized the collective efforts of the University of Georgia, Georgia Tech, and Emory University. Professor Samuel Kou from Harvard University gave the keynote address, titled "Catalytic Prior Distributions for Bayesian Inference."

Attendees ranged from undergraduate students to seasoned faculty members and represented various universities and stages in their academic and professional journeys. Twelve oral presentations and 30 poster presentations provided a platform for the exchange of ideas and latest advances in statistics and data science. The event also recognized several participants with an award ceremony that celebrated outstanding student contributions. The Best Poster Award was presented to PhD candidate Tianjiao Li from Georgia Tech.

The symposium was both a showcase of statistical knowledge and an example of the power of collaboration and interdisciplinary research. It highlighted the work being done in statistics and data science and paved the way for future innovations and partnerships. ■

Statistical Analyst

The Office of Biostatistics is recognized for excellence in the application and communication of statistical science in drug regulation and development. We play a central role in promoting innovative, science-based, quantitative decision-making throughout the drug development life-cycle. To support our Center’s mission, we provide statistical leadership, expertise, and advice to ensure that safe and effective drugs are available to the American people.

DUTIES AND RESPONSIBILITIES

- Work with a multidisciplinary review team to provide statistical programming and data management support, assess the quality and completeness of submissions, prepare clinical trial analysis datasets, validate sponsor results, assist in modeling and simulation, and suggest possible additional statistical analyses required to fully evaluate the evidence in the submission.
- Collaborate with scientists from the Office of Pharmaceutical Quality, statistical reviewers in OB, and management on a variety of computationally intensive projects to support and improve the efficiency of regulatory product review, evaluation of pharmaceutical quality and applied regulatory research.
- Use machine learning and natural language processing to assess internal and external data sources to support assessment of quality intelligence throughout the product life cycle.
- Develop, validate, implement, document, maintain and support programming tools and software according to standards and accepted validation procedures; Support efforts to develop, document and apply reusable code and/or tools.
- Develop software using the appropriate statistical programming packages for statistical reviewers to support programming-intensive review-related activities such as sensitivity analysis, Bayesian approaches, clinical trials modeling, genomic studies, psychometric Clinical Outcome Assessment (COA) validation, and simulation.
- Promote and improve the Center data standards initiatives mandated by the Prescription Drug User Fee Act; Monitor the quality of the implementation of data standards used in New Drug Application submissions.
- Apply your skills to address unique and precedent-setting problems, while refining your consulting, communication, and presentation skills.

REQUIRED QUALIFICATIONS

Master’s degree in statistics or biostatistics.
Familiarity with R, SAS, data science tools, machine learning predictive techniques and natural language processing.

PREFERRED QUALIFICATIONS

Experience in clinical trials, epidemiology, genomics, or risk assessment. Strong skills in multiple programming environments.

Candidates should also have excellent oral and written communication skills.

The ability to communicate statistical issues to non-statisticians is vital.

BENEFITS

Health and Life Insurance
Long-term Care Insurance
Dental and Vision Insurance
Annual and Sick Leave

Paid Holidays
Flexible Spending Accounts (FSA)
Federal Retirement Plan
Thrift Savings Plan (401k)

WORK/LIFE BALANCE

Telework & Alternative Work Schedules
Child Care Center | Fitness Center
Employee Assistance Program/Resource Groups
Commuting and Transportation Programs



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LOCATIONS

Statisticians are located in the Washington, D.C. area.
Remote employment may be available.

Florida

■ The Department of Statistics at Florida State University invites applications for three tenure-track assistant professor positions starting in August 2024. A doctoral degree from an accredited institution in biostatistics, data science, statistics, or a related field with a demonstrated record of achievement in teaching and academic research is required. Please apply at <http://jobs.fsu.edu> (Job ID 56158). The deadline is January 10, 2024. FSU is an Equal Opportunity/Access/Affirmative Action/Pro Disabled & Veteran Employer. FSU's Equal Opportunity Statement can be viewed at https://hr.fsu.edu/sites/g/files/upcbnu2186/files/PDF/Publications/diversity/EEO_Statement.pdf.

Indiana

■ Associate/full professor sought for the Walther Cancer Foundation and Regenstrief Endowed Chair in Cancer Informatics, Department of Biostatistics and Health Data Science/Indiana University School of Medicine, Indianapolis, IN. See posting for duties and education requirements. Competitive salary/excellent benefits. Submit CV, three references to: <https://indiana.peopleadmin.com/postings/19826>. Indiana University is an EEO/AA employer, M/F/D/V.

■ Full professor position with tenure, Department of Statistics, Indiana University Bloomington (www.stat.indiana.edu). PhD in statistics or related field (broadly interpreted) and a research program that receives external funding required. The hire is expected to assume leadership roles in the department. Position open until filled. Files will be considered beginning November 1. More details and application at <http://indiana.peopleadmin.com/postings/20362>. Address questions to Kelly Hanna, khanna@indiana.edu. Indiana University is an equal employer and affirmative action employer and a provider of ADA services. All qualified applicants will receive consideration for employment based on individual qualifications. Indiana

University prohibits discrimination based on age, ethnicity, color, race, religion, sex, sexual orientation, gender identity or expression, genetic information, marital status, national origin, disability status or protected veteran status. IU is responsive to the needs of dual-career couples.

■ Open rank, tenure-track positions, Department of Statistics, Indiana University Bloomington (www.stat.indiana.edu). PhD in statistics or related field (broadly interpreted) and a research program that can garner external funding required. Position open until filled. Files will be considered beginning November 1. Details and application at <http://indiana.peopleadmin.com/postings/20365>. Address questions to Kelly Hanna, khanna@indiana.edu. Indiana University is an equal employer and affirmative action employer and a provider of ADA services. All qualified applicants will receive consideration for employment based on individual qualifications. Indiana University prohibits discrimination based on age, ethnicity, color, race, religion, sex, sexual orientation, gender identity or expression, genetic information, marital status, national origin, disability status or protected veteran status. IU is responsive to the needs of dual-career couples.

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

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

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>.

Kansas

■ The Department of Statistics at Kansas State University is currently accepting applications for two 9-month non-tenure instructional positions at the teaching assistant or associate professor level. Eligible candidates must possess a PhD in statistics or a closely related field and have a minimum of one year of solo teaching experience at the university level. For additional information regarding the job and application, please visit <https://careers.k-state.edu/en-us/job/516062/teaching-assistant-professor>.

■ The Department of Statistics at Kansas State University is currently accepting applications for two 12-month tenure-track positions at the assistant or associate professor level. Duties include consulting and collaborative research with faculty and students primarily in agricultural sciences, advising PhD and MS students, and teaching two courses per academic year. For additional information regarding the job and application, please visit <https://careers.k-state.edu/en-us/job/516097/associate-professor>.

Minnesota

■ The Department of Mathematics and Statistics at Minnesota State

Mathematical Statistician

The Office of Biostatistics is seeking individuals with strong statistical methodology skills and an interest in biomedical applications to serve as mathematical statisticians. Incumbents work with multidisciplinary teams of review scientists in a dynamic, highly challenging, and innovative atmosphere of development, evaluation, and research of drug and therapeutic biologics. The Office of Biostatistics is responsible for reviews in all therapeutic areas CDER supports and can be as diverse as cardio-renal, oncology, rare disease, and antimicrobial products. Incumbents have an opportunity to employ a broad variety of statistical procedures relevant to pre-clinical and clinical evaluation decisions for new and generic drugs as well as new and biosimilar biologics and the emerging field of quantitative risk assessment.

DUTIES AND RESPONSIBILITIES

- Evaluate and advise on protocols for clinical studies and assess the evidence for safety and efficacy from clinical studies submitted in drug and biologics applications.
- Employ a broad variety of statistical procedures relevant to pre-clinical and clinical evaluation decisions for new and generic drugs as well as new and biosimilar biologics and the emerging field of quantitative risk assessment.
- Work with multidisciplinary teams of review scientists in a dynamic, highly challenging, and innovative atmosphere of development, evaluation, and research of drug and therapeutic biologics.
- Refine your consulting, communication, and presentation skills and present at domestic and international professional meetings.
- Engage in an active collaborative regulatory research program which will allow you to advance your skills and professional development.
- Interact with national, international, public, and private organizations on statistical issues, and help develop guidance for the pharmaceutical industry.

QUALIFICATIONS

Applicants should possess an advanced degree with specific coursework in Statistics, Biostatistics or Mathematical Statistics. Applicants with a doctoral degree and associated experience are highly desirable. In addition to a background in statistics, applicants should have an interest in biostatistics, clinical trials, epidemiology, genomics, or risk assessment.

The ability to communicate statistical issues to non-statisticians is vital.

Non-US citizens may apply for term appointments.

BENEFITS

Health and Life Insurance
 Long-term Care Insurance
 Dental and Vision Insurance
 Annual and Sick Leave

Paid Holidays
 Flexible Spending Accounts (FSA)
 Federal Retirement Plan
 Thrift Savings Plan (401k)

WORK/LIFE BALANCE

Telework & Alternative Work Schedules
 Child Care Center | Fitness Center
 Employee Assistance Program/Resource Groups
 Commuting and Transportation Programs



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LOCATIONS

Mathematical Statisticians are located in the Washington, D.C. area.
 Remote employment may be available.

University, Mankato, invites applications for two tenure-track assistant/associate professor positions. The successful applicants must have a doctoral degree in statistics, applied statistics, or biostatistics conferred on an official transcript by August 12, 2024. Demonstrated ability to teach undergraduate and graduate level statistics courses, superior research and communication are required. Please see <https://minnesotastate.peopleadmin.com/postings/2538> for complete job posting.

New Jersey

■ The Department of Statistics of Rutgers University seeks outstanding applicants for a faculty position of associate professor rank or higher to start in fall 2024. Applicants must have a PhD in statistics or related fields. Responsibilities of the position include: teaching and supervising both undergraduate and graduate students, and conducting original research in statistics and data science broadly defined. The department particularly welcomes applicants who can contribute to a diverse and inclusive environment through their scholarship, teaching,

mentoring, and professional services. Pursuit of external research funding is expected. Interested individuals should apply online through <http://jobs.rutgers.edu/postings/214824> providing curriculum vitae, research statement, teaching statement, and arranging for submission and contact information of at least three confidential letters of reference. Review of applications will start on December 1, 2023, and continue until the position is filled. Applicants are encouraged to submit their applications early. In addition to the department chair, our faculty members welcome the opportunities to assist with any inquiries about this position. Rutgers University is an Equal Opportunity Employer.

New York

■ The NYU Grossman School of Medicine Division of Biostatistics advances individual and population health by creating, disseminating, and implementing rigorous, innovative statistical and research methodologies. We seek assistant professor candidates who are emerging scholars with evidence of

outstanding scholarship, a strong commitment to teaching, interest in methodological and collaborative research, a commitment to team science, and effective communication skills. Apply at apply.interfolio.com/95590.

Oklahoma

■ Department of Biostatistics & Epidemiology, College of Public Health, University of Oklahoma Health Sciences Center, seeks a tenure-track assistant/associate professor of biostatistics to be in Tulsa, OK. PhD in biostatistics or related field, record of publications, evidence to obtain extramural funding, & evidence of teaching & mentoring experience required. Applicants apply at <http://apply.interfolio.com/130683> (attach CV, cover letter, teaching statement, research statement, & 3 professional references).

Pennsylvania

■ The Wharton Statistics and Data Science Department, University of Pennsylvania, seeks full-time, tenure-track or tenured faculty at any level: assistant, associate, or full professor, appointment beginning July 2024. Applicants must show outstanding capacity in research and teaching, and have a PhD (expected completion by June 30, 2025, is acceptable) from an accredited institution. Visit <https://statistics.wharton.upenn.edu/recruiting/facultypositions> to apply. Questions can go to statistics.recruit@wharton.upenn.edu. The University of Pennsylvania is an EOE. Minorities / Women / Individuals with disabilities / Protected Veterans are encouraged to apply.

Texas

■ The Department of Statistics at Texas A&M University seeks a full professor to begin in August 2024. This full-time, 9-month position requires a PhD/DSc in statistics or related field. We welcome diverse research backgrounds, with an emphasis on causal statistics or decision theory. Responsibilities include research, teaching, student supervision, and service. Apply by December 15, 2023, at <https://apply.interfolio.com/131778>. Please direct inquiries to hirings@stat.tamu.edu.

■ The Department of Statistics at Texas A&M University seeks two assistant professors to begin in August 2024. These full-time, 9-month, tenure-track

SLMath (MSRI) Call for Applications - Berkeley, CA

ADJOINT 2024 (June 24 - July 5, 2024)

ADJOINT provides opportunities for U.S. mathematicians – especially those from the African Diaspora – to conduct collaborative research on topics at the forefront of mathematical and statistical research. Participants will spend two weeks taking part in an intensive collaborative summer session at SLMath (formerly MSRI) in Berkeley, California.

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Priority Application Deadline: January 15, 2024

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positions require a completed PhD/DSc in statistics or a related field. Successful candidates will conduct research, teach undergraduate and graduate courses, supervise students, and contribute to the profession. Apply by December 15, 2023, at <https://apply.interfolio.com/131752>. Please direct inquiries to hiring@stat.tamu.edu.

■ Rice University Department of Statistics seeks applications for a tenure-track assistant professor position in the broad area of computing with an anticipated start date of July 1, 2024. The selected candidate will teach and develop courses; perform research in their specialized area and present findings in peer-reviewed publications and conferences; establish a strong research program supported by extramural funding. Visit <https://statistics.rice.edu>. Apply to <https://apply.interfolio.com/134150>.

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Columbia University, Department of Statistics Assistant Professor (Tenure Track)

The Department of Statistics invites applications for a tenure-track Assistant Professor position to begin July 1st, 2024. A Ph.D. in statistics or a related field by July 1st, 2024 is required. Candidates will be expected to sustain an active research and publication agenda and to teach in the departmental undergraduate and graduate programs. The field of research is open to any area of statistics and probability. The Department, 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. Women and minorities are especially encouraged to apply. For further information about the Department and our programs, please go to our webpage at: <http://www.stat.columbia.edu>.

Qualifications

Ph.D. in statistics or a related field by the date of appointment, 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 Recruitment of Academic Search and Recruitment portal (ARS) <http://apply.interfolio.com/132238> and must include the following materials: cover letter, curriculum vitae, statement of teaching philosophy, research statement and the names of 3 references, who will be asked to upload letters of recommendation on their behalf.

Salary Range or Pay Grade: \$120,000-\$135,000

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.*

Inquiries may be made to Dood Kalicharan at dk@stat.columbia.edu

Review of applications begins on November 15, 2023, and will continue until the position is filled. Columbia University is an Equal Opportunity Employer / Disability / Veteran



Three Assistant Professor Positions Department of Statistics at Florida State University Fall 2024

The Department of Statistics at Florida State University invites applications for three tenure-track Assistant Professor positions starting in August 2024. These positions provide opportunity for engagement with the large undergraduate program and vibrant M.S. and Ph.D. programs in Biostatistics, Data Science, and Statistics. Candidates with research areas in biostatistics, data science, statistics or related fields are encouraged to apply. The successful candidates will join a faculty with research expertise including machine learning, high dimensional data, network analysis, survival and longitudinal analysis, Bayesian analysis, shape/object data analysis, causality and data privacy, to name a few (see stat.fsu.edu), in a collaborative environment at a comprehensive, Carnegie R1 University. A Doctoral degree from an accredited institution in Biostatistics, Data Science, Statistics, or a related field with a demonstrated record of achievement in teaching and academic research is required. To apply for the positions, please apply at <http://jobs.fsu.edu> (Job ID 56158). Three letters of recommendation are required. The department will begin reviewing applications in December 2023 and expects to start on-campus interviews in January 2024. The application deadline is January 10, 2024. For questions about our hiring process, please contact Pamela McGhee, pmcghee@fsu.edu.

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Top Ten Ways to Express the Number 10



Wasserstein

Amstat News continues its clever offering from ASA Executive Director Ron Wasserstein. Each month, he delivers a special “Top 10”—one that aired during a recent edition of the *Practical Significance* podcast. Ron says, “We’re always looking to expand the horizons of our listeners; in that spirit, I’m offering up the ‘Top Ten Ways to Express the Number 10.’” Read on!

A not-so-funny note from Ron: “My top ten list published in October was found to be offensive and in poor taste by some folks. I am truly sorry. I see their point and will make every effort not to make such a blunder again. To anyone hurt by my carelessness, I hope you will forgive me and not give up on the top ten lists, the podcast, or yours truly.”

10

10

09

1010
(for binary thinkers)

08

$\text{Log}_{10}(10,000,000,000)$

07

The atomic number of neon, though you have to be bright to figure that one out

06

The address on Downing Street of the British Prime Minister

05

Two more than the number of times Larry King was married

04

The number of *Fast and Furious* movies, not counting *Hobbes and Shaw* and *Better Luck Tomorrow*

03

The number of women who have been president of the ASA since I became executive director in 2007 (note: that number will increase to 13 by 2026)

02

One more than the number of women who were president of the ASA in the 168-year history of the ASA prior to 2007 (no causation implied)

#01

And the number one way to express the number 10 ... the Roman numeral formerly known as X



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



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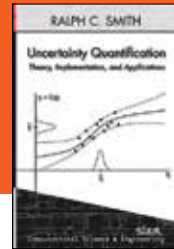
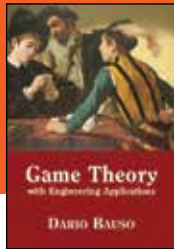
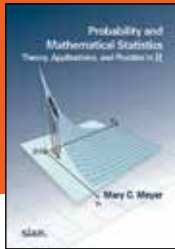
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