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BLACK
HISTORY
MONTH

ALSO:

Gearing Up
for SDSS

Meet William Beach
and Shawn Bucholtz

STATISTICS TEACHER

SUPPORTING THE TEACHING AND LEARNING OF STATISTICS

THE NEW ONLINE JOURNAL FOR
K–12 TEACHERS

STATISTICS TEACHER (ST) is an online journal published by the American Statistical Association/ National Council of Teachers of Mathematics Joint Committee on Curriculum in Statistics and Probability for Grades K–12.

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features

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Celebrating BLACK HISTORY MONTH
Learn About the Impact of David Harold Blackwell

columns

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

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

ASA Data Visualization Poster Competition for Grades K–12

The ASA/NCTM Joint Committee on K–12 Education in Statistics and Probability and the ASA's education department encourage students and their advisers to participate in the annual Data Visualization Poster Competition.

What is a data visualization poster?

A data visualization poster is a display containing two or more related graphics that summarize a set of data, look at the data from different points of view, and answer specific questions about the data.

Posters are due every year on **April 1**.

Learn more at *bit.ly/ASAk12postercomp*.

Become a Reviewer for the IPCC Reports

The Intergovernmental Panel on Climate Change (IPCC) is the United Nations body for assessing the science related to climate change, much of which has statistical aspects. A new release of assessment reports is coming up and, if you have done any work in this area, you can become a reviewer and contribute your statistical expertise. The first review period will occur between March 2 and April 26. For further information, see *www.ipcc.ch* or contact Steve Pierson at *spierson@amstat.org*.

departments

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member news

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ASA Initiatives 2020

Imagine a world that relies on data and statistical thinking to drive discovery and inform decisions. That's the vision of the American Statistical Association. One of the benefits of serving as ASA president is the opportunity to establish initiatives for our association within the context of our vision and mission to "promote the practice and profession of statistics."

In this month's column, I will share the 2020 ASA initiatives and invite you to be involved in working toward our strategic themes through these initiatives.

The following three themes are in our strategic plan (*bit.ly/2tYVDhw*):

1. Enhancing the Diversity and Breadth of Our Association

2. Increasing the Visibility of Our Profession

3. Ensuring the Future of Our Profession

ASA Presidential Initiatives 2020

The three 2020 initiatives build on the efforts of past ASA initiatives and, with your help, will continue our forward progress.

The first effort continues our work on diversity and inclusion. Past initiatives have focused on groups such as Asians, African Americans, Hispanics, and Native Americans. In 2020, we will work on LGBTQ+ inclusion in our profession, which addresses the theme Enhancing the Diversity and Breadth of Our Association.

At WSDS 2018, Suzanne Thornton, Emma Benn, Brittany Green, and I hosted a panel session titled "Preparing for Increased Gender Diversity and Inclusion in Statistics and Data Science: Important Perspectives from Gender Non-Conforming and LGBTQ+ Scholars." The result of this panel was enthusiastic support and a call for more similar events.

To reach a wider audience, Suzanne, Emma, Brittany, and I collaborated with Jack Miller, Miles Ott, and Donna LaLonde to publish two articles for the June 2019 edition of *Significance* magazine. The printed article is titled "Friends and Allies: LGBT+ Inclusion in Statistics and Data Science" (*bit.ly/36Y2Xse*), and the accompanying online reference is titled "LGBT+ Resources for Statisticians and Data Scientists" (*www.significancemagazine.com/624*). After hosting a town hall at JSM 2019, we realized the interest in the work we were doing was large and found a group of more than 30 individual ASA members who wanted to participate.

Some projects are already in the works, such as revitalizing the ASA LGBTQ+ Advocacy Committee, developing ally training, creating opportunities for leadership and professional development through short courses or scholarships, and developing an online presence. Look for more about this initiative in my June (Pride Month!) *Amstat News* column.

Our second 2020 initiative is K–6 Statistics and Data Science and tackles the theme Ensuring the Future of Our Profession. Our community has had a strong commitment to K–12 education through the years, which has been supported by presidential initiatives. For instance, we support teaching and learning through programs such as Meeting Within a Meeting at JSM, What's Going on in This Graph? *(www.nytimes.com/column/whats-going-on-in-this-graph)*, the online journal *Statistics Teacher* (*www.statisticsteacher.org*), and data challenges. We even have a K–12 Statistical Ambassador, Christine Franklin, who guides the creation of professional development materials for teacher educators and teachers, conducts workshops, engages in outreach to the STEM educational community, and much more.

Wendy Martinez

The Common Core State Mathematics Standards and Next Generation Science Standards, in conjunction with the global focus on data science, make these existing efforts essential. However, current efforts focus on middle- and high-school students, and now—in the spirit of Robert Fulghum's *All I Really Need to Know I Learned in Kindergarten*—the 2020 initiative will focus on K–6.

We are happy to announce that 2017 ASA President Barry Nussbaum has agreed to lead this effort. Some projects have already been proposed. One I am excited about is the development of games and apps to encourage children to develop data literacy skills, learn about coding, and cultivate logical thinking. What better way for kids to become familiar with statistics and data analysis than to do so while having fun?

Another project focuses on early middle-school students but could be expanded in the future to include elementary students. This consists of two interview experiences with the overarching goal of developing and encouraging middle-school students' interest in statistics and data science and for those of us already in the profession to learn from them.

The first interview experience will be conducted by three middle-school students representing various regions of the United States: East, Midwest, and West. We will work with the ASA chapters to organize regional competitions that will help us select students for the interviews. These students will interview the three ASA presidents and vice presidents on the 2020 ASA Board. We hope to have this interview distributed in April 2020 in celebration of Mathematics and Statistics Awareness Month.

The second interview will be conducted by me. I will discuss ideas in data science and statistics with three to five late elementary or early middle-school students who are homeschooled. The goal is to gain understanding of how these students view statistics and data science and build relationships with the homeschool community. Who knows? Maybe this can be expanded to get a broader survey of students in these age groups.

Other efforts in this area will focus on building new collaborations with education-focused organizations such as the Concord Consortium (*https://concord.org*) and American Association for the Advancement of Science (AAAS) Human Rights Coalition (*www.aaas. org/programs/scientific-responsibility-human-rights-law/ coalition*).

The theme for JSM 2020 is "Everyone Counts: Data for the Public Good." The AAAS is interested in involving students more in the work of the coalition, and this would be a great opportunity to extend the JSM data for good theme by providing activities that engage students in using statistics to improve our world.

Many of you have probably seen or heard of TED talks. These are relatively short talks on topics of general interest, and they can be influential. At least, they have been influential in my life, as they often bring new perspectives and motivate change. TED's mission is to support "ideas worth spreading," and TEDx events provide the opportunity to showcase these ideas and individual contributors. Our third initiative for 2020 is to host a TEDx event. This, of course, pertains to our strategic theme Increasing the Visibility of our Profession. This initiative continues the important work of 2019 ASA President Karen Kafadar's Impact Initiative and will showcase statistical "ideas worth spreading." The purpose of the event will be to show the public how statistical thinking drives discovery, informs decisions, and makes an impact. Tom Fisher and Eric Laber are leading this task, and the goal is to hold the TEDx event at North Carolina State University in October 2020.

Donna LaLonde, ASA director of strategic initiatives and outreach, has provided me her unwavering support and content for this column. We are looking for your support, too! An online form has been established for you to fill out if you would like to volunteer to help with any of these initiatives. Visit *https://forms.gle/nmNigi5XF2PKmgtv5* and let us know your ideas.

Staff Spotlight: Jack Joyce

Hi, everyone. I'm Jack Joyce, the ASA's new online community and marketing coordinator. If you've had any issues with the community, we may have been in contact already, but I wanted to take this opportunity to introduce myself to the entire membership.

I was born and raised in Alexandria, Virginia, so the ASA is very close to home for me. I actually would drive by the office every day on the way to high school. Little did I know I would be working here in just a few years!

For college, I was lucky enough to attend The University of North Carolina at Chapel Hill, where I graduated in 2018 with a degree in media and journalism. I absolutely loved my time at UNC and will forever be thankful for the opportunities Carolina afforded me.

After college, I took a bit of an unexpected turn and worked as a project manager for a large health care software company in Madison, Wisconsin. So young—and so naïve—I thought I could live anywhere after college. After a year, however, I couldn't resist the urge to come back home to the DC area. I'm so excited to be back and working for the ASA!

If we ever meet in person, there are two topics I can speak extensively about: sports and movies. Pretty standard stuff, I know, but my passion for them runs deep. I cheer for every DC sports team, except for football, in which case I'm a New York Giants fan. Historically, DC sports have been a laughing stock, but the last two years have been amazing with the Capitals and Nationals winning their respective championships, so the suffering has been worth it, if you ask me.

When it comes to movies, I'll watch pretty much anything under the sun. I tend to find directors I like, and then watch all their movies. Some of my favorites are the Coen brothers, Wes Anderson, and Christopher Nolan. I also have extensive movie trivia knowledge, so feel free to quiz me!

If you see me at JSM or any of the other meetings, feel free to say hi. I look forward to working with you all! ∎

ASA Sponsors New Health Care Technology Podcast

Looking to stay up to date on developments in health care technology? Want to do it in about a half hour? Tune in to "The Pod of Asclepius," a new podcast sponsored by the ASA's Section on Statistical Learning and Data Science, Section on Medical Devices and Diagnostics, and North Carolina Chapter, along with an ASA Strategic Initiatives grant.

The podcast will focus on advances in data science, engineering, and regulatory challenges in bridging the gap between technical innovation and clinical solutions.

Each episode is produced in both audio and video format to accommodate both high-level interviews and technical deep-dives into the methods when visual material is helpful.

The podcast launched in January with the following pre-season episodes:

- Allison Meisner (The Johns Hopkins University) on her work in bespoke statistical models for clinical prognosis in kidney injury

- Emma Hughes (NHS England) on digital test-bed programs to bring digital technology into the clinic

- Martin Ho (US Food and Drug Administration) and Greg Maislin (University of Pennsylvania) on the ASA's Medical Device and Diagnostics Section and digital health initiatives

- Glen Wright Colopy (Cenduit) on probabilistic personalized patient vital-sign monitoring

New episodes began airing every two weeks in January with the following guests:

- Jeroen Bergman and Daniel Mogefors on needs-led medical innovation at the University of Oxford

- Niven Narain (Berg Health) on data platforms for pharmaceutical innovation

- Tian Zheng (Columbia) on the ASA's Statistical Learning and Data Science Section

For more information about the podcast, visit its website at *www.podofasclepius.com*. ∎

Are you organizing an ASA-sponsored conference or event on health care? Contact the podcast's host, Glen Wright Colopy, at *gwcolo@gmail.com* to promote your event in an episode.

ASA Science Policy Fellow Highlights Position, Encourages Applications

The American Statistical Association is accepting applications (*ww2.amstat.org/policy/fellowship.cfm*) for its full-time science policy fellow position, a one- or two-year fellowship starting in September 2020 in which a statistician will work to raise the profile of statistics in policy and advocate for evidence-based policymaking.

Based out of the ASA's office in Alexandria, Virginia, the science policy fellow will work with ASA committees, members, and staff to represent the association's science policy positions to Congress, the administration, and other stakeholders. To highlight the position and encourage applications, current ASA Science Policy Fellow Daniel Elchert reflects on this unique fellowship and its many benefits.

Elchert

What led you to apply for the ASA Science Policy Fellowship?

During graduate school at the University of Iowa, I conducted various program evaluations and noticed that best practices for these programs are not always implemented. This background led me to believe statisticians are uniquely positioned to describe how concepts like statistical significance and sampling should and should not be applied in the application of a program or policy. The ASA Science Policy Fellowship is an exceptional opportunity to use my training as a statistician to help ensure policies are informed by objective statistical evidence and raise the profile of statistics in evidence-based policymaking.

What have been some important highlights of your fellowship?

There have been many highlights, so this is a difficult question! With that said, here are just a few from my time as the ASA Science Policy Fellow:

- Led and organized dozens of meetings on Capitol Hill, in the administration, and in federal agencies on topics relating to federal statistics and statistical policy

- Consistently collaborated and interacted with leaders from the statistical community, including ASA presidents, Senate-confirmed scientists, and agency heads from principal federal statistical agencies (*www.reddit.com/r/IAmA/comments/dwuta5/im_robert_santos_president-elect_of_the_american*)

- Represented the ASA across Washington, speaking publicly at conventions, conferences, and with stakeholder organizations (*www.amstat.org/asa/files/pdfs/POL-ASACommetsLeveragingData.pdf*)

- Attended *New York, et al. vs. United States Department of Commerce, et al.* at the United States Supreme Court

- Conducted internal research for the ASA (*https://magazine.amstat.org/blog/2019/08/01/mastergraduate*)

What have you liked most about the position?

In most scientific disciplines, there is a space between the creation of knowledge (or the science itself) and policy, which I'll define as how scientific knowledge is then applied to improve lives. Who helps connect these parts to make sure scientific knowledge is integrated to policy? This task is central to the ASA Science Policy Fellowship and what I like most about this position. For nearly two years, I have had the opportunity to collaborate with leaders in the statistics community to advocate for our profession and promote evidence-based policymaking.

Can you describe a typical day at work?

Most weeks, the ASA Science Policy Fellow spends two or three days in Washington representing the ASA at various policy and stakeholder meetings, such as the Coalition for National Science Funding and the Friends of the Institute of Education Sciences. It is also common for the science policy fellow to speak on behalf of the ASA on Capitol Hill and in the administration on issues relating to federal statistics and statistical policy.

On other days, the science policy fellow works from the ASA's Alexandria office on tasks like writing policy statements ranging from artificial intelligence to climate change and organizing, planning, and collaborating with scientists from varying disciplines to build coalitions and advocate for evidence-based policymaking (e.g., letter-writing campaigns).

Is there time for research during the ASA Science Policy Fellowship?

The focus of the fellowship is on science policy and raising the profile of statistics in evidence-based policymaking. However, there is time for research activities and, as the ASA Science Policy Fellow, I presented at academic conferences, co-managed and authored the ASA's first survey of master's graduates, and am currently preparing several manuscripts for publication. More broadly, there are many professional development opportunities available through fellowship.

Why should people consider applying?

The ASA Science Policy Fellowship provides a close look at federal science policy with an emphasis on the role of statistics in evidence-based policymaking. Given this focus, I think statisticians with interests in statistical policy, policy analysis, program evaluation, applied research, and data policy should consider applying.

In the past, science policy fellows have been recent graduates from either a doctoral or master's degree program in statistics or a closely related discipline, but the position would also be a good fit for mid-career professionals interested in advocating for statistics and evidence-based policymaking in Congress, in the administration, and with stakeholder organizations.

How can interested readers apply?

I encourage all interested applicants with a doctorate or master's degree in statistics or related discipline to apply. Submit a letter of application not to exceed two pages, a short résumé, writing samples (nontechnical if available), and contact information for three professional references via email to ASA Director of Science Policy Steve Pierson at *spierson@amstat.org*. Applications are being considered on a rolling basis before the September 2020 start date. More information is available at *ww2.amstat.org/policy/fellowship.cfm*.

What's your favorite statistics quote?

Statisticians generally agree that models are typically imperfect and seek (at least in part) to explain and/or predict something about the real world. To quote George Box, "All models are wrong, but some are useful." Similarly, it could be argued that all policies are wrong, but some are useful. This is my favorite statistics quote because I interpret it to suggest that statistical reasoning can be applied to help conceptualize policies and make them more useful. ■

Task Force on Statistical Significance and Replicability Created

Karen Kafadar, 2019 ASA President

At the November 2019 ASA Board meeting, members of the board approved the following motion:

An ASA Task Force on Statistical Significance and Reproducibility will be created, with a charge to develop thoughtful principles and practices that the ASA can endorse and share with scientists and journal editors. The task force will be appointed by the ASA President with advice and participation from the ASA BOD. The task force will report to the ASA BOD by November 2020.

Co-chairs Linda Young and Xuming He will be working with ASA Staff member Elizabeth Henry to support the Task Group. With suggestions from board members, the following ASA members—from various research emphases, statistical approaches, and disciplines—were identified as task force members:

Linda Young, National Agricultural Statistics Service and University of Florida (Co-Chair)

Xuming He, University of Michigan (Co-Chair)

Yoav Benjamini, Tel Aviv University

Dick De Veaux, Williams College (ASA Vice President)

Bradley Efron, Stanford University

Scott Evans, The George Washington University (ASA Publications Representative)

Mark Glickman, Harvard University (ASA Section Representative)

Barry Graubard, National Cancer Institute

Xiao-Li Meng, Harvard University

Vijay Nair, Wells Fargo and University of Michigan

Nancy Reid, University of Toronto

Stephen Stigler, The University of Chicago

Stephen Vardeman, Iowa State University

Chris Wikle, University of Missouri

Tommy Wright, US Census Bureau

Based on the initial meeting, these members decided "replicability" was more in line with the critical issues than "reproducibility" (cf. National Academy of Sciences report, *bit.ly/35YBLbu*), hence the title of the task force is ASA Task Force on Statistical Significance and Replicability.

Young and He welcome input and are working with ASA Director of Awards, Committees, and Elections Elizabeth Henry on a mechanism for receiving comments from the community. ■

Meet William Beach, Commissioner of the Bureau of Labor Statistics

*A*mstat News invited William Beach, commissioner of the Bureau of Labor Statistics (BLS), to respond to a few questions so readers could learn more about him and the agency he leads.

What about this position appealed to you?
I was excited about the opportunity to be the commissioner of Bureau of Labor Statistics, which would give me the chance to lead a statistical agency that produces gold standard data and is respected throughout the world. Plus, this appointment seemed like a great fit, because I have used BLS data throughout my career—from graduate school through work in the think tanks, as chief economist to the Senate Budget Committee and, most recently, as vice president of policy research at George Mason University.

I believe in our mission, which is to help Americans make better decisions by measuring many key facets of the US economy, including employment and unemployment, compensation, worker safety, productivity, price trends, consumer spending patterns, and Americans' use of time.

Describe the top priorities you have for the Bureau of Labor Statistics.
First, it is crucial we continue to stand as the premier economic data organization in the world, either public or private. Although BLS is the gold standard against which every other statistical organization judges their quality, we need to continually improve and enhance the way we do business to remain the gold standard.

Second, it is crucial we all remain curious about how the economic world works. That world is rapidly changing, perhaps at a pace not seen since the reconstruction of major European and Asian economies following World War II. Globalization has produced enormous benefits for most people as it has restructured wide swaths of economic activity. It has also reshaped the income profiles of people in both developed and developing countries. Statistical agencies around the world must be keenly attuned to these economic changes and filled with analysts who are focused on understanding these changes, capturing them, and building them into mainline economic and social theory.

What do you see as the biggest challenge(s) for BLS?

Declining response rates and data protection are the biggest challenges facing BLS. These are actually related because our respondents are more likely to participate in voluntary surveys if they are confident their data is safe and confidential. At the same time, the general public is more likely to trust our data as the gold standard if we can prevent it from being manipulated by outsiders. We know many people would have much to gain by manipulating or obtaining our data prior to official release. And a successful cyberattack or data breach/leak of some sort would be devastating to us as an independent, objective agency. Thus, the security and confidentiality of the information provided by respondents are vital to the reputation of BLS.

I am impressed and reassured by how BLS supervisors and managers stress the importance of security and confidentiality to new employees, from their first day on the job. We are constantly growing a staff that takes these issues seriously.

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

One of the key themes of the Foundations for Evidence-Based Policymaking Act (the evidence act) is that the federal government must better use all data gathered by its statistical agencies. To successfully meet the multiple mandates of the first implementation phase of the evidence act, members of the statistical community must come together and assist one another. BLS will provide the necessary resources and expertise to meet these requirements.

One advantage of the US system of statistical agencies is the subject-matter expertise each agency has built and the potential to coordinate with experts who handle policy and regulation. For example, the BLS program on occupational safety and health statistics works closely with the Occupational Safety and Health Administration (OSHA) on definitions and concepts, which benefits BLS in its statistical work and OSHA in their regulatory mission.

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

Of all the great work done every day at BLS, two recent items come to mind. First, the American Time Use Survey just released 2017–2018 estimates of access to and use of leave and job leave and flexibilities. This data was collected during a module sponsored by the US Department of Labor (DOL) Women's Bureau.

Second, we recently produced experimental state Job Openings and Labor Turnover Survey (JOLTS) estimates using various statistical models. The National Council for the American Worker wants BLS to continue producing these experimental estimates and explore expanding the JOLTS sample to produce sample-based estimates for states and metropolitan areas. We have shared information about this potential expansion with the Office of Management and Budget and are currently working within the DOL on options for expanding our JOLTS sample, including budget options. ∎

Meet Shawn Bucholtz

Director of the Housing and Demographic Analysis Division of the US Department of Housing and Urban Development Office of Policy Development and Research

Shawn J. Bucholtz is director of the Housing and Demographic Analysis Division of the US Department of Housing and Urban Development (HUD) Office of Policy Development and Research (PD&R). He oversees HUD's housing market surveys program, including the American Housing Survey and Rental Housing Finance Survey. He has a BS in public resource management from Michigan State University, an MS in agricultural and resource economics from the University of Maryland, and a PhD in computational social science from George Mason University.

For the Record: Shawn J. Bucholtz

Title: Statistical Official and Director of the Housing and Demographic Analysis Division

Agency/Office/Unit Name: Office of Policy Development and Research

Department: Department of Housing and Urban Development

Website: *www.huduser.gov*

Staff Size: Three federal employees, 50+ federal staff at the US Census Bureau, and numerous contractors

Annual Budget: $41 million

With the January 2019 enactment of the Foundations of Evidence-Based Policymaking Act (to be referred to as the evidence act here), every federal department and agency is required to have a statistics official who, among other responsibilities, represent the department/agency to the Interagency Council on Statistical Policy (ICSP), headed by the chief statistician of the US. Just as the ASA has been profiling ICSP federal statistical agency heads for many years (*bit.ly/2FTEet6*), we now welcome new ICSP members to the federal statistical community.

Tell us more about your office.

My office's mission is to provide the public with timely data about the housing market, focusing on housing conditions and production. To carry out that mission, my office oversees HUD's housing market surveys programs, including the American

Housing Survey, the Rental Housing Finance Survey, and the Survey of Construction.

The bulk of the $41 million annual funding for HUD's housing market surveys program is provided to the US Census Bureau, which is responsible for data collection and most survey operations. My HUD team works with the Census Bureau to ensure we produce timely and accurate housing market data used by other federal agencies, local and state governments, housing trade associations, housing and community advocacy organizations, and academic and nonacademic researchers.

You've been named the statistical official. Will this be an entirely new position at your agency, or will you continue to serve in your current role along with being the statistical official?

For the time being, I will serve as the statistical official and continue my duties as the director of housing and demographic analysis.

How does the evidence act change the profile and work of your office? What are your top priorities in your expanded role in the department?

The bulk of the evidence act responsibilities and deliverables fall with the chief data officer (CDO). To meet the goals of the evidence act, HUD will create and staff an Office of the Chief Data Officer. As the statistical official, my top priority will be to support the CDO in that effort.

Beyond that, my staff and I have a tremendous amount of expertise in the production of data products for the public, so we will devote time to helping the CDO implement the open data provisions of the evidence act, including the creation of a HUD data catalog.

What do you see as the biggest challenge(s) for you as you take on this new role?

I believe my biggest challenge will be setting priorities. The "to do" list created by the evidence act is long and includes both inward-facing responsibilities (e.g., data governance) and outward-facing responsibilities (e.g., open data, evidence building).

As the statistical official, I will have a role in carrying out those responsibilities, working with our CDO and evaluation officer. As a team, we will have to determine which of the evidence act responsibilities need immediate attention and which responsibilities are more suited to long-term projects.

Fortunately, HUD is not starting from scratch! We have a strong track record of soliciting input from our stakeholders to help us prioritize how we conduct evidence-building activities and provide data to the public.

Tell us more about you and your professional path to becoming the statistical official.

I got my start as an undergraduate doing data entry for a survey about dairy farms. Since then, most of my professional career has revolved around the production and use of data.

I spent the first six years of my federal career at the US Department of Agriculture's (USDA) Economic Research Service, where I worked on land use and environmental issues. After that, I spent three more years at USDA's Farm Service Agency, where I helped implement agricultural conservation programs. I left the USDA to serve in my current role at HUD.

Along the way, I earned an MS in agricultural and resource economics from the University of Maryland and a PhD in computational social science from George Mason University.

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

I am thrilled that the evidence act expanded the ICSP membership to include HUD and other "nonstatistical" agencies. I see at least two ways in which the ICSP and broader statistical community can support the nonstatistical agencies as we implement the evidence act. First, I don't think it is any secret that most of the very best examples of evidence-based policymaking have their roots in data-matching projects in which federal data from a nonstatistical agency was combined with other federal or nonfederal data to measure program performance or long-term outcomes. I hope the ICSP can help nonstatistical and statistical agencies work together to promote and undertake data-matching projects.

Second, to realize the open data provisions of the evidence act, the nonstatistical agencies will need a lot of technical assistance from the statistical agencies, and ICSP can help foster those relationships. In particular, the nonstatistical agencies will need help creating public-facing data products that are machine-readable and include robust privacy protections. ■

STAT*tr@k*

Estimating Percent Effort

Śaunak Sen is professor and chief of biostatistics in the University of Tennessee Health Science Center Department of Preventive Medicine. His research interests are in statistical genetics, analysis of high-throughput data, and statistical computing.

Many statisticians in American academic institutions have "soft money" appointments funded by a mutable portfolio of research grants. A fundamental aspect of holding such a position is proposing and negotiating "percent effort"—a proxy for money without being called so.

Misunderstandings and disagreement regarding percent effort likely underlie much interpersonal conflict involving soft money statisticians. Negotiations regarding percent effort conducted indelicately can degenerate into unpleasantness, harming both the statistician and the funding collaborator. On the other hand, to negotiate effectively and have a productive working relationship, the statistician needs to build trust with the collaborator. A key ingredient is being transparent regarding what percent effort means and how to come up with a number that appears fair to both parties.

I propose a few principles for percent effort estimation so the statistician can justify the number he/she proposes to a collaborator. Note that these are principles, and not formulas. So, what may appear reasonable to one may not appear so to another, and therefore one has to negotiate. I suggest you come up with a number that satisfies the following three principles framed as three questions:

1. **How many projects like this can I handle?** Divide 100 percent by that number.

   For example, if you can handle 10 similar projects, then that means the estimate should be 10 percent. This means most collaborative projects should be at least 5 percent effort, preferably at least 10 percent. Very senior personnel may sometimes accept less effort, say 2 percent.

2. **How many hours per year (month or week) would the project consume?** Divide that by the FTE (full-time equivalent).

   The biostatistics consulting unit uses an FTE of 1,600 hours per year. This assumes you work 50 weeks a year, 40 hours a week (2,000 hours), and about 20 percent of your time is spent on activities essential to your position but not attributable to any specific project. This would include attending seminars, water cooler talk (not too much), writing letters of recommendation, attending conferences, and reviewing grants and papers.

   The above mentioned 1,600 hours FTE may or may not apply to you, but is a good place to start. Please use your judgment to estimate what is appropriate for your position.

   So, if you think you might spend about three hours a week on a project, that would come out to about 10 percent effort.

3. **What is the understanding with your collaborator?** Higher percent effort should mean faster response times and dedicated time slots.

   By agreeing to a certain percent effort, the statistician and collaborator enter into a contract. This is not always clearly spelled out, unfortunately, and can lead to misunderstandings. I am not suggesting both parties treat this too formally, but it may be worth discussing mutual expectations. These expectations will also shape the percent effort.

   For example, one might expect faster response times for a project covering 20 percent effort compared to 5 percent effort. A project covering 30 percent effort may ask the statistician to hold in-person office hours once a week.

Case Studies

Minimal Effort

Bob would like Alice to provide statistical advice on a study of smoking and asthma. An experienced analyst in Bob's lab will perform the analysis under Alice's direction.

This may be a candidate for 5 percent effort for a mid-level or senior statistician. A junior statistician may consider 10 percent effort.

- Principle 1. A moderately experienced faculty member would probably be able to handle

10–20 such projects, assuming they don't all use specialized techniques and most involve judicious use of existing methods.

- Principle 2. A 5 percent effort means Alice can set aside about an hour and half weekly, or about 20 hours per quarter.

- Principle 3. Alice would be somewhat available to Bob to answer questions or give feedback on an abstract or manuscript. It would not be unreasonable for Alice to take two weeks to respond to a query.

Advice and Occasional Analysis
Now, if this study involved analysis of longitudinal data of smoking patterns using mixed effects models that Bob's analyst is not fluent with, then one may expect Alice to request 10 percent effort. The understanding might be that Alice would perform the more complex analyses herself using R or Stata.

- Principle 1. If Alice is fluent in analysis of longitudinal data, she may reasonably handle 10 such projects (which require her to pick up the analysis)

- Principle 2. Alice would devote about 40 hours per quarter (five days), or a little under two days a month. Although predicting how long data analysis would take is difficult, this may be reasonable. Many data analyses go through multiple rounds of revision, and so the amount of time devoted may be 10 or 20 times that of the final analysis

- Principle 3. Alice would be moderately available. One might expect her to respond faster than in the previous case or be available for a quick phone call in a week.

Specialized Analysis
If the study has genomewide genetic data and intends to perform a genomewide association analysis, then Alice may request Bob to consider a greater intensity of involvement—say 10–20 percent, depending on complexity and expectations from Alice.

Alice might agree to 15 percent effort with the understanding that she will follow the statistical literature closely and, if needed, implement customized solutions to complete the statistical analysis. It seems reasonable she could handle between 5–10 such projects (Principle 1), be available about three days a month for the project (Principle 2), and be expected to respond to queries within about a week.

Leading a Statistical Core
If Alice is leading the statistical core of a center led by Bob with three related projects, then a starting point

of discussion might be about 30 percent effort. Can one lead five such cores and remain sane (Principle 1)? Alice would have to lead a small team of programmers and be available to answer questions within a day or two (Principle 3). Alice may have office hours at Bob's center once a week. This could take between one or two days a week.

Leading Projects
If Alice is leading her own projects, either as an independent principal investigator or as part of Bob's lab, 20–50 percent effort would be considered reasonable. Less than 20 percent effort may be seen as insufficient commitment; to lead a research project, one should be prepared to spend at least one day a week on average. Junior investigators would lean toward the higher end of the scale, while senior investigators would likely be at the lower end.

Conclusions
Statisticians on soft money appointments are supported by multiple projects from different funding sources. I think the three principles laid out would help transparently negotiate percent effort. By agreeing to ground rules, statisticians can reduce potential conflict and build trusting long-term relationships with collaborators.

There is considerable flexibility in how the principles may be interpreted. For example, the FTE estimate is dependent on the individual statistician's circumstances. Both parties may use the process of negotiating percent effort to also negotiate mutual expectations.

I also recognize that estimating percent effort before working on a project amounts to extrapolation with attendant risks. If anything, many of us have a tendency to overestimate what we can accomplish in a given amount of time. From this perspective, it is helpful to be conservative in the estimates. It is often helpful to start out for a specified period (say six months or a year) and then adjust effort depending on realized complexity.

Finally, while I have considered statisticians in soft money environments, the essential principles are applicable to nonstatisticians and academics in "hard money" environments with appropriate modifications. Hard money appointees are not usually required to adhere strictly to how they are paid, but that might change as universities cut back on guaranteed funding for faculty.

Questions or comments? Follow me on Twitter at @saunaksen or visit my blog at *www.senresearch.org*. ■
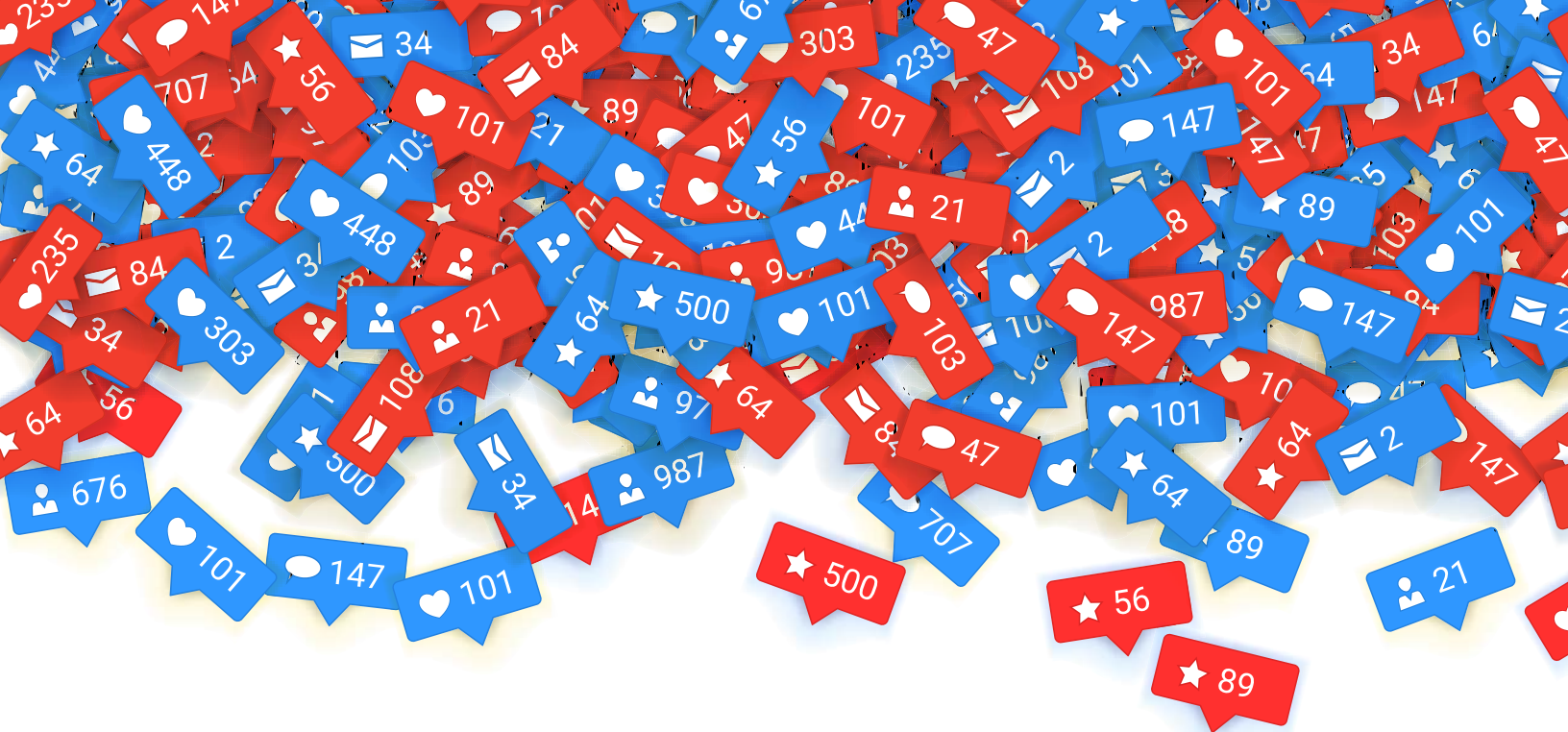
Social Media Resources for Data for Good Projects

With a PhD in statistical astrophysics, **David Corliss** leads a data science team at Fiat Chrysler. He is the founder of Peace-Work, a volunteer cooperative of statisticians and data scientists providing analytic support for charitable groups and applying statistical methods in issue-driven advocacy.

In this, the first of a two-part series, we are going to look at how social media channels can play an important supporting role in Data for Good projects. While Data for Good is always technology driven, not all the tech is mathematical.

One area that can play an important supporting role in D4G projects is the effective use of social media. Social media channels can support our work by allowing us to promote projects, connect with volunteers, sign people up for hackathons, and learn and share analytic methods with the wider community.

This month's Stats4Good focuses on social media resources available now, and the March column will have more hands-on information and practical advice for developing your own resources.

The distinctive characteristics of different social media channels greatly influence which resources can be found there. Channels that don't require an invitation to see posts are used to disseminate information and make resources available to the general public, while invitation-only channels support resource sharing between groups of collaborators. Increasingly, invitation-based platforms like LinkedIn are becoming semi-public through large groups with hundreds of thousands of followers—Data Science Central is a good example, with a wealth of resources for researchers.

General purpose internet search engines will find web pages, journal articles, and YouTube videos, but not individual posts on a particular subject. This can create a gap in searches for ephemeral materials such as tweets, Instagram posts, and so on. Of course, almost nothing in social media is really temporary ("What happens in Vegas stays … on YouTube!"), so gaining experience with the search engines of these sites can be helpful.

Onsite searches on fast-moving channels will help you find event announcements and job postings. Searches using hashtags are especially helpful at finding resources through channel-specific search engines.

With more resources becoming available on video every day, YouTube has become an indispensable resource for Data for Good. One part of the picture are tutorials on analytic methods. The quality of instruction on social media channels can vary, so learning to quickly recognize the signs of a good tutorial is a useful skill.

When learning new analytic methods—whether for D4G or in general—it's important to remember that math classes are as much about the language as anything else. When tutoring a person, I usually start by asking if they know the words being used, because if they don't have the language down, there is no way they will be able to do the math. The critical role mastering the language plays in learning mathematical subjects is often overlooked by instructors (something to remember when helping kids with their homework). The instructor will
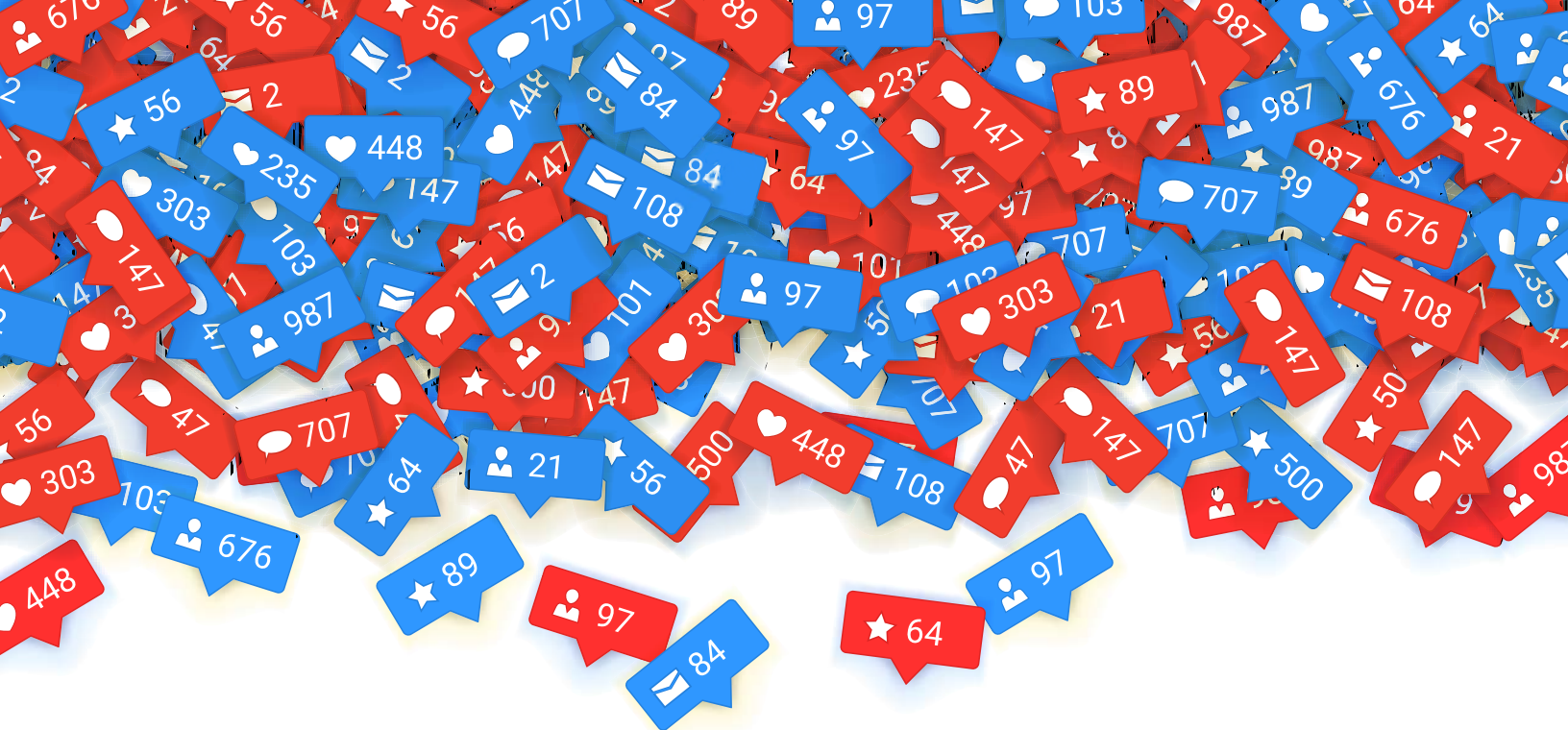
clearly explain their terms from the beginning in a quality video tutorial. If they don't, head back to the search engine!

Another common failing of instructors on social media is incomplete directions. Look carefully at the first example in the video. If steps are omitted or items are "left out of the recipe," there is no need to sit through a whole video that won't provide much help. (This is also why people who produce videos need to try them out on a person who doesn't know the material *before* posting on social media. I'll have more on how to create good content next month.)

Beyond the purely analytic, YouTube is becoming a channel of choice for Data for Good projects as people share successful case studies, interviews, best practices, ideas, and directions for ongoing work and provide information about organizations, their activities, and how to get connected.

An important development has been the advent of channels, used by video producers to deliver related content to a wide user base. Normally, as far as D4G is concerned, channels are free to subscribe to. All it really means is getting an email when new material is posted. Several leading Data for Good organizations, including Statistics Without Borders (*www.youtube. com/channel/UC_B9IFL3z8bB1Ml6GcVDavA*) and DataKind (*www.youtube.com/channel/ UC1sEO7tOKngDkguBWf2DovA*), have created their own YouTube channel. It's definitely something to check out!

Subscribing to an organization's channel means always having easy access to the latest information. And while social media video channels are increasingly important for sharing Data for Good, it's important to keep up to date using the search

Get Involved

February is the month for the ASA's Conference on Statistical Practice. There will be many great presentations in Data for Good, and I will have the opportunity to lead a panel discussion about ethics at the intersection of statistics and the public square.

On Friday night at CSP, interest groups arrange meet-ups for dinner. Data for Good has gotten so large it is no longer feasible to have one D4G dinner gathering, so I will be looking for people to organize smaller groups within the larger D4G space. It would be great to see meet-ups for specific areas in Data for Good, such as environmental and climate research, student programs and education advocacy, and human rights analytics—whatever interests you most! If you are going to be at the conference and would like to organize a dinner meet-up, please email me at *davidjcorliss@ gmail.com* or talk to me at the event.

engine, as well. Some great videos are posted by individuals and collaborating organizations that might not appear through the official channel.

Social media today offers many resources to support Data for Good activities. The effort spent learning to make effective use of social media to find and acquire information about methods, projects, and organizations pays dividends in learning, solving problems, and inspiring new ideas to serve the greater good through statistics. ∎

Lessons from the Life of David Harold Blackwell

By Jacqueline M. Hughes-Oliver

David Harold Blackwell was a once-in-a-lifetime, brilliant, off-the-charts, amazing genius in probability, game theory, information theory, and Bayesian inference. And he was black.

Many interviews and articles have been recorded and written that speak to the many sides of Blackwell (see Further Reading in the online version of this article at *https://magazine.amstat.org*). The most extensive source I have discovered is the 157-page transcript of interviews conducted by Nadine Wilmot in 2002 and 2003 (*David Blackwell: An Oral History with David Blackwell*) in which the voice of Blackwell is loud and clear. While these interviews touched on Blackwell's research, they were mostly focused on his life experiences, and that is also the focus of this article.

Blackwell was quick to acknowledge that while he worked hard for his accomplishments, his success was also facilitated by others. I have identified five running themes in his life, and I believe these themes offer guidance on how each of us can work toward diversifying and strengthening the discipline of statistics. The themes are stability, support, expectation, advocacy, and opportunity.

David Harold Blackwell was born on April 24, 1919, in Centralia, Illinois, and died on July 8, 2010, in Berkeley, California. His father, Grover Blackwell, was born in Tennessee and moved to Centralia in 1912 to work as a strike breaker for the Illinois Central Railroad. Grover Blackwell had a fourth-grade education but maintained employment with the railroad during the Great Depression.

Blackwell's mother, Mabel (Johnson) Blackwell, was born in Missouri and completed two years of high school. Mabel was a housewife and independent woman who owned and managed a couple of rental properties.

Blackwell's maternal grandfather was David S. Johnson. Born and well-educated in Ohio, Johnson was a school teacher in Weakley County, Tennessee, before becoming a successful storekeeper in Centralia.

Blackwell was the eldest of four children and spoke of growing up in a community where all parents

African-American Statisticians Serve as Models for Helping Others

The month-long tradition of celebrating the achievements of blacks/African Americans in February began with Carter G. Woodson and the Association for the Study of Negro Life and History (ASNLH) in 1926. Carter and the ASNLH were dedicated to researching and promoting the achievements of black Americans when they began organizing Negro History Week, taking place during the second week of February and coinciding with the birthdays of Abraham Lincoln and Frederick Douglass.

In celebration of Black History Month, we recognize the famous professor David Blackwell along with 16 individuals from the black/African-American collective who have made tremendous contributions to the field of statistics.

Blackwell was a trailblazer with an expansive career that traversed more than 50 years. In celebration of his career and 100th birthday, Jackie Hughes-Oliver tells us about his impact on diversity and statistics, along with his personal interactions and accounts of events in his life. Hear his voice in these accounts, which provide life lessons on how we can positively affect the careers and lives of others.

Blackwell's 62nd PhD student, Richard Lockhart, further recognizes Blackwell's achievement by highlighting the impact of his research and career contributions.

The 16 featured individuals have made significant successes as researchers, professors, deans, and entrepreneurs. They inspire professionals on the rise and their peers by being role models, organizing workshops, mentoring, and advocating for increased representation in the field of statistics. Their bios exemplify the life lessons offered by Hughes-Oliver from the life of Blackwell. Read them to learn more about how they entered the field of statistics, what they've accomplished, and the role of mentoring in building their professional careers.

~ Dionne Swift
2019 Chair, Committee on Minorities in Statistics
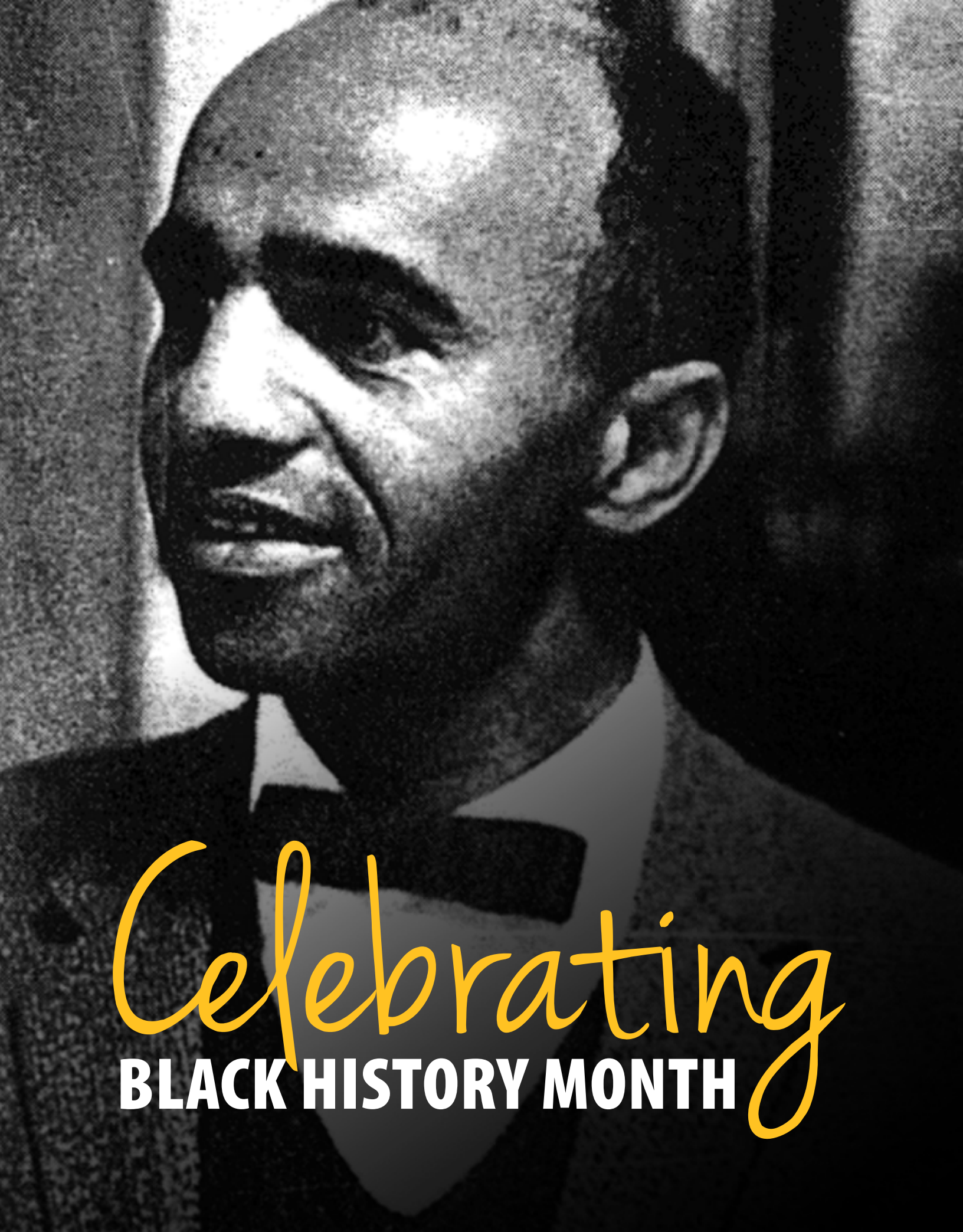
Celebrating
BLACK HISTORY MONTH

expected their children would be well educated, even though the parents may not have been. His brother Johnson Wesley became a railroad worker; another brother, Joe, became a lawyer; and his sister, Elizabeth Louella, became a school teacher.

Blackwell's formative years were heavily influenced by family. When asked who encouraged his abilities in math, he said the following:

> I had an uncle who could add numbers, three columns at a time, and that always impressed me. He never went to school at all; my grandfather taught him. I never knew [my grandfather]. Apparently, he was a well-educated man—he left a large library of books. The first algebra book I ever saw was in his library. I don't think he graduated from college. … The reason that his son, my uncle, never went to school was that my grandfather never let him. He was afraid he would be mistreated because he was black.

Acknowledging the disconnect between his grandfather being well educated and his uncle not going to school, Blackwell pointed to his grandfather attending school in a more accepting location, according to Donald Albers in *Mathematical People: Profiles and Interviews*.

> But that was in Ohio, not in Illinois! Southern Illinois was probably fairly racist even when I was growing up there. The school I went to was integrated, but there was also a segregated white school in that same town. There were in fact two segregated schools, one that only blacks could attend and one that only whites could attend.

There were several high-school teachers who were pivotal in Blackwell's life. These teachers expected him to succeed, served as advocates for his abilities, and created opportunities for him. In *David Blackwell: An Oral History with David Blackwell*, Wilmot captured Blackwell saying the following:

> I had an absolutely fabulous high school education. When I went to college, I was a semester up on most of the college students there. There were things that they studied in college algebra I had already studied in high school. Things that they studied in freshman English I had already studied in high school. High school was harder for me than college!

Caroline Luther was his geometry teacher. "She invited me to come and visit her a couple times after I was in college," said Blackwell. "I had always been pretty good at math and somewhat interested in it, but geometry really excited me."

Raymond Huck was the math club teacher. "There was a mathematics magazine that was partly for high school mathematics students, and it had a problems section," said Blackwell. "Mr. Huck encouraged us to try to solve the problems there, and sometimes we did. I solved a couple of them, and Mr. Huck wrote up my solution and mailed it into the mathematics magazine," continued Blackwell. "And a couple of times, my name appeared in the magazine and once even my solution—really Mr. Huck's write-up of my solution—appeared in the magazine. I was very pleased with that."

Grace Seiler secured a scholarship for Blackwell to attend college. "There was an English teacher, Grace Seiler, who encouraged me to go to college," said Blackwell. "In fact, she wanted me to go to her alma mater, which was DePauw University."

Speaking more generally of his teachers, Blackwell said, "They had a general interest in the students, not just me particularly. They kept up with students after they left."

The Great Depression (1929–1939) was in full swing by the time Blackwell graduated high school. But, in those days, every high-school graduate from Illinois was eligible for admission to the University of Illinois. Blackwell said to Wilmot, "There was never any doubt in my mind, I wanted to go to the University of Illinois, and I intended to go there." There was a statewide exam in which the top scorer in each county received a four-year scholarship to attend the University of Illinois. Blackwell earned the top score in Marion County and enrolled at the University of Illinois in 1935, at the age of 16.

Blackwell had no connections in Champaign-Urbana, home of the University of Illinois, and arrived on campus with no place to stay. He traveled there alone, walked 1.5 miles from the train station to campus, and began heading to the administrative building to inquire about housing. His good fortune was that the black fraternities on campus (Alpha Phi Alpha and Kappa Alpha Psi) had a system in place to support their fellow students. Members would regularly watch for new black students arriving on campus and offer them housing. Blackwell was invited to stay at the **Alpha Phi Alpha** house, and he lived there during his entire six years at the University of Illinois.

Blackwell recalled his fellow students providing critical support in other areas, as well. Although he won a four-year scholarship to pay his tuition ($35 per semester), the scholarship did not cover living expenses or books. His father took loans to handle these expenses the first year, but Blackwell refused to allow his father to go into debt beyond that.

Another custom within the black Greek campus community was that some students earned money

by washing dishes and serving as wait staff at various locations on campus. As one such student graduated, they sought a replacement from among their group to guarantee their junior colleagues continued to benefit. In this way, Blackwell earned money by working at the Pi Beta Phi sorority. His fellow students assisted in other important ways, too, according to Wilmot.

> You had to take a foreign language, and I had studied Spanish in high school and I planned to continue that. But one of my fraternity brothers told me—this was within two or three days after I got there—that I should take German instead of Spanish. Because, he said, "If you're pretty good at mathematics, you may want to go on for a PhD. And Spanish won't help you, but you'll be required to read German, so you should take German." That was extraordinarily good advice from just one of my fraternity brothers who was two or three years ahead of me and could look that far ahead."

Some college professors were also instrumental to Blackwell's success. **Arthur Crathorne** hired Blackwell for odd jobs, including as a bookkeeper to support Crathorne's position as a church treasurer and to check answers in Crathorne's new algebra book. Crathorne taught calculus and probability, and Blackwell came to realize these employment opportunities were likely designed to provide funding, rather than to truly fulfill a need. "I didn't appreciate it at the time. It was only when I look back on it that I realize how [Crathorne] helped me," Blackwell told Wilmot.

It was also Crathorne who invited **Jerzy Neyman** to the University of Illinois in 1937 and made sure Blackwell was introduced. Of course, this first encounter is important, given the role eventually played by Neyman in Blackwell's career.

Upon completing his bachelor's degree in mathematics in 1938 at the age of 19, the United States was still experiencing the Great Depression. With an extra year of scholarship remaining, Blackwell decided to continue his studies, completing a master's degree in mathematics in 1939. While studying for his master's degree, Blackwell applied for funding to complete a doctoral degree in mathematics, also at the University of Illinois. Blackwell recalled to Wilmot the following:

> There were two kinds of awards, fellowships and teaching assistantships. They paid the same amount of money, but for a fellowship you didn't have to do any teaching. So they were the preferred award. And there were maybe three fellowships and twenty

teaching assistantships every year. … One of the other graduate students told me that I was going to get one of the fellowships. I said, "How do you know that?" He said, "Well, you're good enough to be supported and they're not going to put you in a classroom!" Because I was black, of course. He was right, sure enough I did get one of the three fellowships. And I'm sure that a partial consideration was, "Well, we need to support this fellow, and we can't put him in a classroom, so let's give him a fellowship."

Blackwell's doctoral adviser was **Joseph Doob**. Doob was relatively young, having earned his PhD in 1932 from Harvard University in analytic functions, and he was laying the foundations as a self-taught expert in probability theory.

Blackwell defended his dissertation, titled "Properties of Markov Chains," in 1941 at the age of 22. And, of course, there is an interesting backstory that highlights the impact of personal relationships. Doob was planning to spend the 1941–1942 academic year at the Institute for Advanced Study in Princeton. Paul Halmos and Warren Ambrose were fellow doctoral advisees of Doob, but they had finished and were going with Doob to the institute. So it was important to Doob that Blackwell also finish. According to Wilmot, Blackwell said the following:

> That's, hurry up and finish your thesis, so I can go to the institute without worrying about you. And so, he not only pushed me to finish my thesis and approved it but … got a Rosenwald Fellowship for me so that I could go to the institute, also. When I say, "He got it," I'd never heard of such things. *He* told me to apply for it. *He* got the necessary information, and he sort of suggested what I should say.

A historical digression is important to fully appreciate the preceding paragraph. After the Great Depression ended within the United States, the country immediately became embroiled in World War II (1939–1945). Opportunities were limited. The Rosenwald Fund was created by Julius Rosenwald, former president of Sears, Roebuck, & Company, and its goal was the equalization of opportunities among Americans, according to Jayne Beilke in her 1997 *Journal of Negro Education* paper, "The Changing Emphasis of the Rosenwald Fellowship Program." From 1928 to 1948, the fellowship program awarded grants to black scholars, writers, educators, and artists. Without this funding, Blackwell would not have been able to spend time at the institute.

While at the institute for the 1941–1942 academic year, Blackwell became interested in game theory and met John von Neumann. (Many years

later, in 1979, Blackwell became the first African American to win the von Neumann Theory Prize.) It was also during the year at the institute that Blackwell became "mildly interested in statistics" as he attended lectures by Sam Wilks, according to Wilmot. Once again, Blackwell gained immensely from his contemporaries. He recalled, "Again, as in my graduate days, I learned more from my contemporaries than I did from the higher-ups, so to speak." Jimmie Savage was a particularly influential contemporary, but more on that later.

But that year at the institute almost did not happen. In those days, visiting members of the institute became honorary faculty at Princeton. **Frank Aydelotte** was director at the institute and staunch supporter of Blackwell. Unfortunately, the president of Princeton objected to Blackwell entirely on the basis of race. Several professors in the institute (including **Oswald Veblen**) threatened to disconnect the institute from Princeton, so the president acquiesced and Blackwell was allowed to visit. Blackwell said to Wilmot, "And I was just welcomed cordially along with everybody else. It was only much later that I found out that there had been all of this to-do."

Blackwell expected his best employment opportunities would come from a black college, so he only applied to black colleges—all 105 of them. He also embarked on a driving tour to present himself to about 30 colleges on the East Coast, starting at Morgan College (now Morgan State University), then Howard University, and then moving south.

Blackwell accepted the first offer he received, and that came from Southern University in Baton Rouge, Louisiana. For the 1942–1943 academic year, he taught only elementary undergraduate courses.

His 1943 move to Clark College (now merged with Atlanta University and known as Clark Atlanta University) was motivated by the regional strength offered by the Atlanta colleges for black education, namely Morehouse College, Morris Brown College, and Atlanta University. These schools had a joint seminar series, and Blackwell would have the opportunity to teach at the graduate level. It was while he was working at Clark College that Blackwell met his wife-to-be, Ann Madison.

Although interviewed by the head of the math department at Howard University during his 1941–1942 driving tour of black colleges, Blackwell did not get an offer. But another man was listening to the interview from his desk and asked some questions afterward. Two years later, this man—**Dudley Woodard**—became head of the math department and made an offer to Blackwell to join the faculty at Howard.

Woodard was only the second African American to earn a PhD in math (1928, University of Pennsylvania), which he was so committed to earning that he resigned as dean of the Howard College of Letters and Sciences so he could pursue the PhD. Woodard was committed to math excellence at Howard and started both a math library and a math seminar.

Blackwell was the seventh African American to earn a PhD in math, and he joined Howard University in 1944—the same year he married Madison. He was promoted to professor and department head in 1947. With many veterans returning from World War II and wanting training through the G.I. Bill, the math department saw a large increase in enrollment. Blackwell talked fondly about hiring William Claytor, the third African American to earn a PhD in math (1933, University of Pennsylvania). Once again, the black community provided stability, support, and opportunities for Blackwell, with the expectation he would excel.

The Howard University years also allowed professional development. Blackwell said to Wilmot, "My interests were basically formed at that time, while I was at Howard."

Howard's proximity to Washington, DC, provided many opportunities. He became a consultant at the Operations Research Office in DC, where he found motivation for his work in game theory and optimization theory. He met **(Meyer Abraham) Abe Girshick** at a Washington, DC, chapter meeting of the American Statistical Association. Girshick was a major influence on Blackwell's work in statistics; he provided an introduction to Wald's sequential analysis and, when he became a full-time employee at RAND Corporation in California, Blackwell became a consultant.

Girshick joined the newly formed Stanford University Department of Statistics in 1948, and Blackwell spent the 1950–1951 year in residence there. Blackwell and Girshick wrote the early authoritative book on games and statistical decisions, *Theory of Games and Statistical Decisions.*

It was also at RAND where **(Leonard) Jimmie Savage** influenced Blackwell to embrace the Bayesian paradigm. Blackwell's 1969 book, *Basic Statistics*, is regarded by some as one of the first books covering Bayesian inference.

Blackwell discovered the Rao-Blackwell Theorem, written about in his 1947 *Annals of Mathematical Statistics* article, while employed at Howard University. (On a personal note, this theorem is special to me because it is how I first learned that someone who looked like me had fundamentally contributed to the field of statistics.)

The backstory of this discovery is both inspiring and poignant, best relayed in Blackwell's own words to Wilmot:

> Three statisticians—Abe Girshick, Fred Mosteller, and Jimmie Savage—found a way to get an unbiased estimate from a sequential sample. But their formula was rather mysterious; people didn't understand it. They could prove that it worked, but it wasn't clear what was going on. So I was one of those who was trying to understand their estimate, trying to understand why it worked. And I was walking along one day and all at once, the idea popped into my mind that it's a conditional expectation. That's what their estimate is. That told people how to do unbiased estimation in sequential sampling, so people paid attention to it. But that's really all there was to it. I was just trying to understand their estimate and I was able to explain it. I probably did it in 1946; it was published in 1947. Now, two years before that, though, in 1945, [C.R.] Rao published his thesis. And the same result that I had was one of *many* results in his thesis. So, because in his thesis, the result was buried among several other results, people hadn't paid much attention to it, and I didn't know anything about it. But, when I rediscovered it, and used the rediscovery to explain the Girshick-Mosteller-Savage estimate, people paid attention to it."

Asked about his interactions with Rao, Blackwell said to Wilmot, "I don't remember what our first meeting was like. I do know, though, that he's not especially happy that my name is attached to the theorem. And he shouldn't be, because he has the priority by two years. It's just that somehow when I did it, it got publicity. … There were maybe twenty citations in the first couple of years. … I may never have cited that paper after that."

Blackwell transitioned to the University of California at Berkeley in 1954 as a visiting professor. As it turns out, he almost had the chance to join the department 12 years earlier, in 1942. Neyman, who had been introduced to Blackwell in 1937 by Crathorne, interviewed Blackwell in 1942, and the math department at UC Berkeley agreed to hire him. Unfortunately, the department head's wife, who frequently hosted gatherings for the department, said she "was not going to have that darky in her house," according to Wilmot.

By 1954, the department of statistics was forming at UC Berkeley and, in 1955, Blackwell became professor of statistics. He served as chair of the department of statistics from 1957 to 1961 and was assistant dean of the UC Berkeley College of Letters and Sciences between 1964 and 1968. Blackwell was the first African American tenured at UC Berkeley. To recognize his distinguished service and accomplishments, UC Berkeley opened a new dorm named David Blackwell Hall in 2018.

Blackwell has indeed been acknowledged with numerous honors. In 2014, President Barack Obama posthumously awarded him a National Medal of Science. In 2002, the Blackwell-Tapia Prize was created in honor of Blackwell and Richard Tapia to recognize research excellence in the mathematical sciences by an individual who has also worked to increase diversity and broaden representation. In 1994, the MAA-NAM Blackwell Lecture was created to exemplify the spirit of Blackwell for promoting understanding, where the target audience consists of undergraduate students with a strong interest in conducting research in mathematics. And Blackwell holds at least 13 honorary Doctor of Science degrees.

Blackwell also holds many records as either the first or one of the first African Americans to achieve various titles. For example, he was the seventh African American to earn a PhD in math; the first African-American fellow of the Institute of Mathematical Statistics (IMS); the first African-American president of the IMS, 1955; the first African-American fellow of the ASA, 1962; the first African-American elected member of the National Academy of Sciences, 1965; elected to the American Academy of Arts and Sciences, 1968; the first African-American winner of the von Neumann Theory Prize, 1979; vice president of the American Mathematical Society (AMS), 1968–1971; vice president of the International Statistical Institute, 1975–1977; and vice president of the ASA, 1978.

Blackwell's excellence can be denied by no one. It is clear he was exceptional. His brilliance and fortitude allowed him to achieve under circumstances in which many other prodigies would have failed. Period.

Nevertheless, I am encouraged because Blackwell's exceptional life provides many clues for how we can positively influence the lives of others. Indeed, anyone can play a critical role, as evidenced by the many names appearing in boldface throughout this article. Blackwell provided a model for how to take time to honor those who help us along the way, and he provided a guide for how we can help others. His network offered him the stability and support he needed to make the most of his opportunities. His advocates, even in the face of pressure, showed commitment and surrounded him with an air of expectation that allowed him to blossom. Diversity in the profession can be achieved if each of us earnestly commits to these same actions. ■

David Blackwell: Impact

By Richard Lockhart

David Blackwell was a singular mathematician who put understanding first, isolated the crucial features of a problem, and then wrote with precision and clarity, making things as simple as possible for his audience—whoever that was. I hesitate to use the label "mathematician"; his contributions to statistics, probability, game theory, operations research, information theory, and many other areas are so varied that it is impossible, even improper, to place him in one box—even one as big as mathematics.

The scope of Blackwell's work prevents one writer from appreciating properly the impact of his many contributions to many communities. Here, I start where I met him, sample a few areas of his work and outstanding features of his style, look at other indicators of his impact, and touch on his impact on me.

I am privileged to be one of 65 PhD students Blackwell supervised between 1955 and 1981. I asked Blackwell to be my supervisor after hearing him give a talk at Stanford in the Berkeley-Stanford colloquium series. He discussed his idea of "Borel programmable" sets, even using transfinite induction, in what remains the clearest talk I have ever attended. Clarity of exposition was a constant hallmark of Blackwell's work, even with the most difficult ideas.

That clarity was paired with brevity. Blackwell wrote 84 papers and two books. Only eight papers were more than 10 pages long; all these 'long' papers had co-authors (who I credit with the 'wordiness'). In fact, 23 of Blackwell's papers have three or fewer pages. This is strikingly different from the modern pattern. I believe the brevity helped Blackwell have profound influence. Modern papers drone on, discussing several similar ideas, providing applications to a welter of closely related problems, and giving extensive simulation studies; key ideas are often buried in the process. Blackwell would isolate and highlight these ideas, state one or two succinct and meaningful theorems, and provide utterly clear and explanatory proofs.

Readers can see this brevity in action in two 1973 papers in *The Annals of Statistics* on Dirichlet process priors. Each is three pages long. The first, with JB MacQueen, constructs Dirichlet process measures as limits of Polya urn schemes; the second, by Blackwell alone, reproves Ferguson's key result that Dirichlet process measures are almost surely discrete. Nothing is repeated, no words wasted, and—as always for Blackwell—arguments are completely tight. These well-cited papers are undoubtedly Blackwell's most influential direct contribution to Bayesian statistics. (He was a Bayesian.) The Polya urn paper, in particular, is one of Blackwell's most heavily cited—still getting more than 60 citations per year some 47 years later.

Blackwell has many influential publications that continue to be well cited. His most-cited work is his 1954 book with Abe Girshick, *Theory of Games and Statistical Decisions*. In 2019, this book had citations in sources as diverse as the *Journal of Machine Learning*, *Annual Review of Economics*, and the *Journal of Quantitative Analysis in Sports*. This is extraordinary longevity and dispersal of what are obviously important ideas.

One way David had impact was by writing papers that carefully explore the fundamentals of an area. Two highly influential papers on dynamic programming do this in the *Annals of Mathematical Statistics* in 1962 and 1965. These rather long papers (eight and 10 pages) lay out the structure of optimal solutions to undiscounted and discounted rewards problems. Both were well cited in 2019.

I would be remiss if I failed to mention Blackwell's work on comparison of experiments, his work on renewal theory (Google the Blackwell renewal theorem.), his work on information theory with Leo Breiman and Aram Thomasian, and his many contributions to the theory of Markov Chains. And, of course, generations of statisticians have learned the Rao-Blackwell theorem (but Blackwell acknowledged Rao's priority in this).

The ideas themselves have the biggest impact, but there are other indicators and forms of impact. For mathematicians, articles in the *Annals of Mathematics* are seen as career making; Blackwell has three, including his first
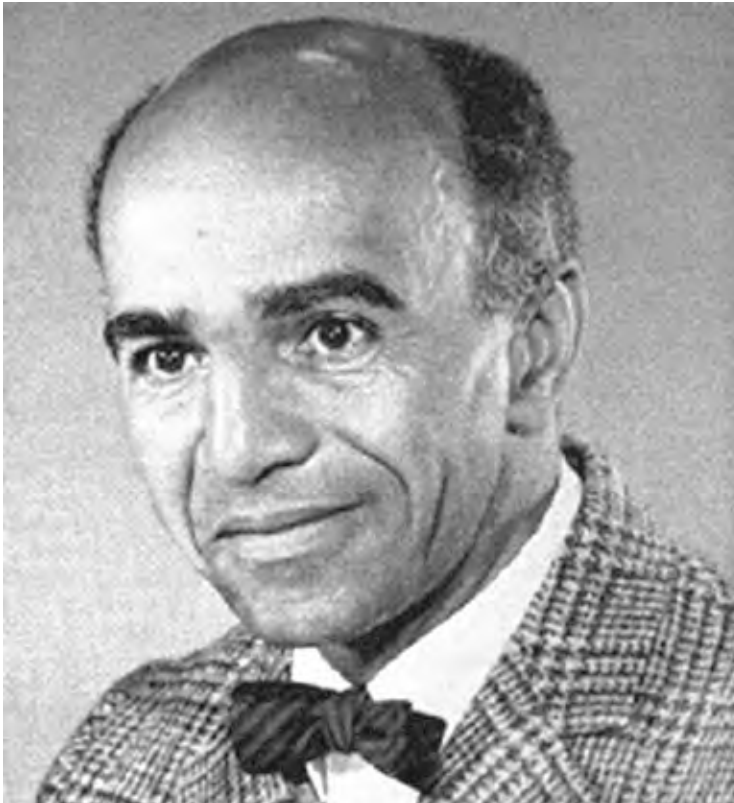
"... [H]is contributions to statistics, probability, game theory, operations research, information theory, and many other areas are so varied that it is impossible, even improper, to place him in one box—even one as big as mathematics."

(1941) publication. He has 31 papers in the *Annals of Mathematical Statistics,* another four in the *Annals of Statistics*, and six in the *Annals of Probability*. Add to that many more in leading journals of the American Mathematical Society (AMS) and you see Blackwell's work routinely reached the highest venues for theoretical statistics and probability. He served as president of the Institute of Mathematical Statistics, president of the Bernoulli Society, vice president of the International Statistical Institute, vice president of the AMS, and vice president of the ASA—all positions of international influence and impact. And his impact and genius were widely recognized: He was the Wald Lecturer, won the Fisher Award, and received a dozen honorary degrees.

Blackwell's career may sound straightforward, but there were many barriers for a black man—no matter how brilliant—along the way. His first long-term appointment was at Howard, the leading historically black college, in 1944. Just three years later, he was professor and head of the mathematics department there. Jerzy Neyman finally succeeded in hiring Blackwell in 1955 at the birth of the University of California, Berkeley Statistics Department; just two years later, Blackwell was chair.

I became Blackwell's student in the middle of 1977. For the next 18 months, we met roughly weekly for a half hour; Blackwell would give me just enough insight for me to find my way. I grew to admire profoundly his oft-cited quote (from an interview with Donald Albers in his and Gerald Alexanderson's 1985 book, *Mathematical People: Profiles and Interviews*), "Basically, I am not interested in doing research. I am interested in understanding, which is quite a different thing."

The contrast between that quote and the modern academic climate is striking. Papers are long, turning problems over every which way. Assumptions in theorems become matters of convenience, chosen to make proofs easy or like other writers' proofs. From Blackwell, I learned to admire natural assumptions and proofs that use natural structure. I learned to admire short, clear writing. I lack Blackwell's talent for brevity, so I am struck constantly by the fact that it is—or at least was—possible to have so much impact in so few words. ∎

Celebrating 16 Inspiring Individuals

Charlotte Baidoo loved how statistics told a story from data when she was in high school and, while she was an undergraduate, a professor inspired her to pursue a career in biostatistics. It was an opportunity to combine her love of applied math with helping others. Now, she aids the development of medicines to transform patient's lives. A child of Ghanaian immigrants, she is also passionate about inclusion and diversity and co-leads EMBRACE, GSK's first multiethnicity-focused employee resource group.
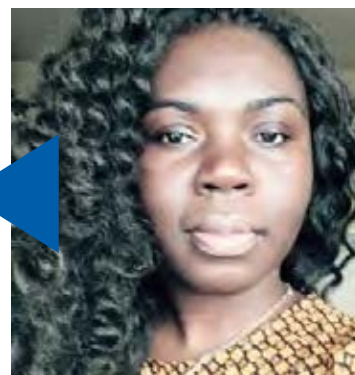
F. DuBois Bowman was fortunate to have parents who challenged him to excel academically and an education enriched by many individuals—in graduate school, he benefitted from a strong supporting faculty he still regards as role models and mentors. Now a renowned expert in the statistical analysis of brain imaging data, his research has helped reveal brain patterns that reflect disruption from psychiatric diseases, detect biomarkers for neurological diseases, and depict more individualized responses to therapeutic treatments.

Cavell Brownie was born in Jamaica and earned her PhD from Cornell University in 1973. She mentored female junior faculty and African-American students at North Carolina State University, meeting them regularly to discuss research and educational issues. In fact, NC State established a faculty award in her name to encourage faculty to emulate her generous mentoring.

While **Lorin Crawford** was writing his honors thesis on semigroup theory, he decided he no longer wanted to work on pure math problems but instead wanted to focus on more immediate real-world applications. Today, as RGSS Assistant Professor of Biostatistics at Brown University, his lab includes a mixture of postdoctoral fellows, graduate students, and undergraduate researchers in applied math, biostatistics, computational biology, and computer science. And even though his work has earned him recognition as a member of *The Root* 100 Most Influential African Americans in 2019, the most rewarding part of his job to him is having the unique opportunity to mentor people with such diverse skill sets, thought patterns, and social backgrounds.
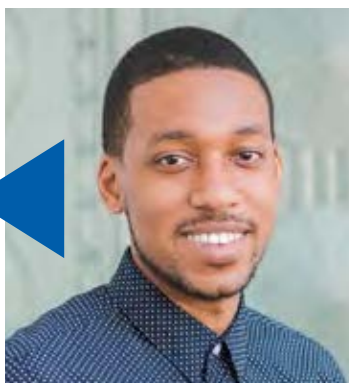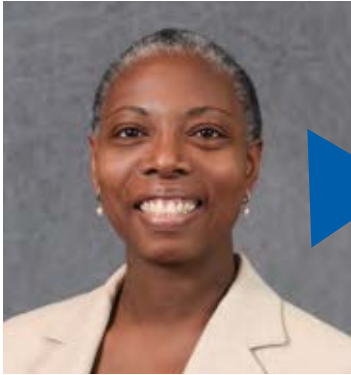
Jacqueline M. Hughes-Oliver was born in Jamaica and raised there by her grandmother until age 15, at which time she moved to join her mother in Ohio and attend the University of Cincinnati. She chose to study statistics in graduate school because of its applicability to *every* discipline; the thought of being able to make contributions in myriad areas was particularly enticing. A professor of statistics, Hughes-Oliver is passionate about outreach to underrepresented groups in the mathematical and statistical sciences and has been recognized with several teaching awards and elected to the NC State Academy of Outstanding Teachers.

Even though **Neal Jeffries's** father was a high-school math teacher, he studied only enough mathematics to earn a degree in economics. However, while working as a policy analyst, he realized statistics was necessary to critically evaluate the data that provides the basis for sound public policy—and that understanding led him to want a formal statistics education. Now, at the National Institutes of Health, Jeffries's work involves advances in treating sickle cell anemia by expanding the pool of those who can receive curative stem cell transplants and developing new avenues of therapy.

Bill Jenkins began his career as a statistician in the National Center for Health Statistics. He was a biostatistician by day and an activist by night. During his early 20s, he learned of the infamous and unethical Tuskegee syphilis study and worked to expose it. He helped extract an official apology from the federal government and produced a documentary with the survivors. Sadly, he passed away in February 2019 at the age of 73.

Read their full bios online at *www.amstat.org/ black-history- month-2020.*
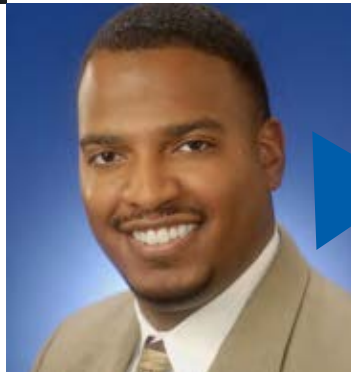
At The Ohio State University, multiple faculty members invested significantly in **Brian Millen's** development. These individuals expanded Millen's statistical thinking, supported his goals, celebrated his successes, and coached him through every low point. Consequently, Millen became an advocate for diversity and inclusion and is past chair of and current adviser to the ASA Committee on Minorities in Statistics and founder of the JSM Diversity Workshop and Mentoring Program.

When **Tanya Moore** first took statistics her junior year in college, she struggled. With the help of her mentor, Nagambal Shah, and adviser, Mark van der Laan, however, she gravitated toward probability and statistics because of their ability to combine math with issues she cared about. Today, she is passionate in her support of women in STEM careers and co-founded the Infinite Possibilities Conference, designed to support, promote, and encourage underrepresented minority women in mathematics.

Photo Credit: Greg Habiby

Melvin S. Munsaka's father, a former teacher turned pastor, often hinted to him about medical school, but Munsaka was drawn to mathematics and science and eventually pursued mathematics at the University of Zambia. It was in graduate school that he switched his major to statistics and probability and was awarded a Canadian Commonwealth Scholarship to complete his MSc at McGill. Since then, Munsaka has worked for STATPROBE, Takeda Pharmaceuticals (where he received three of the company's prestigious awards), and AbbVie.
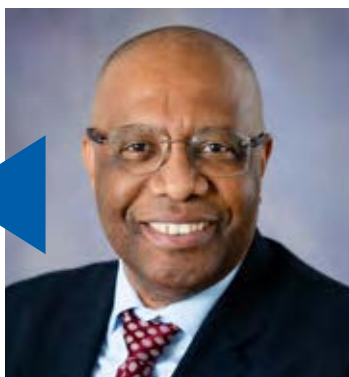
Darrell Philpot traversed a long career in the pharmaceutical industry, engaged in market research, forecasting, survey sampling, and promotion modeling, before becoming senior director of data science and advanced analytics at IQVIA. Over the course of his career, Philpot has felt lucky to have been mentored by his college professor, Kermit Hutcheson, as well as Ken Copland and Paul Wilson.

Dionne Price always enjoyed applied mathematics in school, but it was the chance to intern for the National Institute for Neurological Disorders and Stroke that sparked her love of biostatistics. Now at the FDA, she provides leadership to statisticians involved in the development and application of methodology used in the regulation of anti-infective, anti-viral, ophthalmology, rare diseases, urology, and reproductive drug products. She also writes poetry. Read "The Journey" in her extended bio online.

Read their full bios online at *www.amstat.org/black-history-month-2020.*

Mathematics was always **Kimberly Flagg Sellers's** favorite subject, and she recalls wanting a PhD in a math-related discipline at an early age. In fact, she graduated from high school at age 16 and earned her undergraduate degree in mathematics at age 20 on a full academic scholarship. An associate professor of mathematics and statistics at Georgetown University, Sellers is an elected member of the International Statistical Institute and an active contributor to efforts to diversify the fields of mathematical and statistical sciences.

Nolan Terry is a proud native of Augusta, Georgia, and a graduate of the University of Georgia. He is vice president and director of manufacturing at Nestlé Purina, where his passion for leading high-performing teams helps support a nearly $10 billion business in the United States. He believes data always tells a story and we have to be willing to listen and take action.
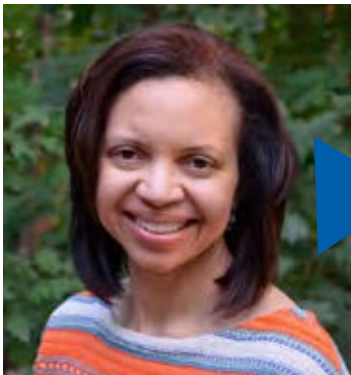
Currently a statistics professor at North Carolina Central University, **Kimberly S. Weems** has been instrumental in enhancing the graduate mathematics curriculum with statistics courses. She strives to expose her students to a variety of areas in statistics and data science and encourages them to pursue the path that inspires them, as she thinks this will lead to the happiest and most productive careers. She is the 2017 recipient of the College of Arts and Sciences Excellence in Teaching Award.

An early interest in mathematics shifted slightly when **Tommy Wright,** then a junior mathematics instructor, was assigned to teach a course in probability and statistics. But as he learned statistics with the students, he discovered what one might do with statistical knowledge, ultimately leading him to graduate study in statistics. Since joining the US Census Bureau in 1996, Wright has led the Center for Statistical Research and Methodology, which focuses on challenges in providing official statistics on the behavior and condition of the nation's people and businesses.

SDSS: Data Science and Statistics on the Pittsburgh Waterfront

Dave Hunter, SDSS Program Chair; Zhi Yang, SDSS Conference Committee; and Donna LaLonde, ASA Director of Strategic Initiatives and Outreach

The 2020 Symposium on Data Science and Statistics (SDSS) continues to innovate and will feature several new elements, as well as popular activities from last year's conference. Registration is open for the ASA-sponsored conference most directly devoted to strengthening ties between the statistics and data science communities, which will take place June 3–6 in Pittsburgh.

This year, the conference will feature a vastly expanded career service, including (dependent upon funding) a corporate-student meetup event Thursday evening at which students and others seeking employment will be able to mingle with representatives from companies interested in people possessing their skill sets.

We have also implemented a new system of refereed contributed presentations. Modeled after the well-established systems in place at many prestigious computing conferences, this system provides an outlet for work at the interface of statistics and computing that is less cumbersome than the usual journal refereeing process.

Popular elements from the SDSS 2019 conference, such as the speed mentoring event and organized lunch meetups, will again be part of the program. There will also be time in the evenings for those attending to catch up with old friends and colleagues or chat with new ones while enjoying all downtown Pittsburgh has to offer (*downtown pittsburgh.com/visit*). Finally, we will once again offer a full slate of for-fee workshops during the day on June 3 before the official start of the conference that evening with the opening mixer.

New to the program this year will be additional for-fee lunch with conversation events scheduled at the close of the conference on June 6.

The scientific program will again be organized into "tracks": machine learning; education; software and data science technologies; computational statistics; practice and applications; and data visualization. Roughly speaking, the scientific program features one session per track, running concurrently throughout the conference. Interspersed with the concurrent sessions will be e-poster sessions, which cut across all the tracks and often feature refreshments and the chance to chat informally. Keynote addresses by leaders in the data science community complete the program offerings.

Each of our three keynote speakers has a connection to Pittsburgh. We'll leave it to readers to try to discover what these connections are but, in at least one

Let's Get Noticed

You can follow SDSS on Twitter at **@SDSSconf** and tweet us using the hashtag **#SDSS2020**. By following us, you will be informed about important deadlines and given pro tips to get ready for both attending and speaking at SDSS 2020. There will also be live tweeting about sessions and workshops.

For speakers, we can help post slides, codes, and links online to get your work noticed by a broader network of people who are interested.

Most importantly, we'd like to improve the conference attendee experience, so please @ us and use the hashtags if you provide feedback or share what you learn from the sessions.

case, it's obvious: **Rebecca Nugent** is the newly named Stephen E. and Joyce Fienberg Professor in Statistics & Data Science at Carnegie Mellon University, as well as a national leader in data science education.

Jeannette Wing is the director of Columbia University's Data Science Institute, where she has been a professor of computer science since 2017, after several years as corporate vice president of Microsoft Research.

And **Rob Tibshirani,** from Stanford University, is among the most influential developers of statistical methodology in the world, as well as the co-author of multiple highly influential books on data science, including *Elements of Statistical Learning, An Introduction to Statistical Learning with Applications in R*, and *Statistical Learning with Sparsity*.

Beyond the scientific program, Pittsburgh is a great place to visit! Within easy walking distance of the Westin Conference Center are multiple restaurants, museums, theaters, and shopping opportunities in the trendy Strip District. The scenic Pittsburgh waterfront boasts the confluence of the Allegheny and Monongahela rivers, known as "The Point," and PNC Park, home of the Pittsburgh Pirates, who will be in town for a home game each of the days of SDSS. (Thanks to Major League Baseball for arranging this for us!)

Register now at *ww2.amstat.org/meetings/sdss/2020* and visit Pittsburgh this June to join the diverse gathering of data experts SDSS has become. ∎

Proposals Wanted for JSM 2020 Late-Breaking Sessions

David Banks, JSM 2020 Program Chair

Each year, the JSM program committee reserves two invited session slots for statistical topics or issues that have arisen between the time the rest of the invited program has been locked and the middle of April. I hope to have two such sessions.

To a much greater degree than I appreciated before becoming program chair, organizing JSM is a complex process with so many components and steps that extreme forward planning is necessary to ensure the event is a success. The price our professional societies pay for this is that most of the program content is set in place almost a year before the meeting occurs, which works against the timeliness, relevance, and impact we all want this conference to have. So, in their wisdom, my predecessors established the policy of leaving the door open for two sessions that address statistically important and relatively recent topics.

A late-breaking session addresses a hot statistical issue of the day or a pressing contemporary topic in statistics. The competition is open to any member or organization that participates in JSM. Members of the program committee judge the proposals according to their statistical and scientific quality, timeliness, significance, audience appeal, and completeness.

Submitting a Proposal

Please submit late-breaking session proposals to the JSM 2020 program chair, David Banks (*dlbanks@duke.edu*), with a copy to the ASA meetings department (*meetings@amstat.org*) by April 15. The proposal should include the following:

- The session description, including title, summary of statistical and scientific content, explanation of the subject's timeliness and significance, and comments about the intended target audience

- The format of the session (e.g., a chair and four panelists, 2–3 speakers and a discussant, etc.)

- The names, affiliations, and contact information for the session organizer, chair, and all participants (speakers, panelists, discussants as appropriate)

- A title for each presentation in the session, if appropriate to the format

- Links to relevant technical reports or news reports, if applicable

Organizers must ensure the presenters agree to participate before submitting a proposal. For obvious practical reasons, late-breaking sessions do not count against the JSM "one main presentation" rule (see *ww2.amstat.org/meetings/jsm/2020/guidelines.cfm*).

Proleptically, I thank every participant for contributing to an outstanding JSM 2020 program. We do this together, and it is the annual centerpiece of our professional community life.

Recent Late-Breaking Sessions

For session details, view the programs still posted on the JSM websites at *www.amstat.org/ASA/Meetings/Joint-Statistical-Meetings.aspx*.

2019

- Statistics at a Crossroads: Who Is for the Challenge?

2018

- Addressing Sexual Misconduct in the Statistics Community

- Statistical Issues in Application of Machine Learning to High-Stakes Decisions

2017

- National Governments, Coerced Narratives, Creative Language, and Alternative Facts

- Hindsight Is 20/20 and for 2020: Lessons from 2016 Elections

2016

- Invest in What Works: First Steps Toward Establishing Evidence-Based Policymaking Clearinghouse

- Data Journalism and Statistical Expertise: An Urgent Need for Writers, Bloggers, and Journalists to Be Statistically Savvy

2015

- The VA Secretary Bans a Statistics Book

- Meeting the Challenges of a Pandemic: The Statistical Aspects of Dealing with Ebola

2014

- Statistical Science and the President's BRAIN Initiative

- Recent Concerns About Reproducibility and Replicability: The Statistical Aspects ∎

Three Win Student Travel Award to Conference on Statistical Practice

Kaur

Boyd

Frisbie

The following student winners will receive registration and travel support to attend the Conference on Statistical Practice.

Amandeep Kaur
Lester R. Curtin Award

Kaur has a bachelor's degree in dental surgery and a master's degree in public health with a double major in epidemiology and biostatistics that allows her to approach projects scientifically and statistically. She works as a research biostatistician at Interdisciplinary Health Sciences Institute (IHSI) at the University of Illinois at Urbana-Champaign, assisting the researchers. Specifically, Kaur provides consultation pertaining to power analysis, study designs, data management, statistical analysis, and programming; prepares statistical reports; and writes specific sections of manuscripts. Her research covers human development and family studies, cancer studies, animal studies, food sciences and human nutrition, social studies, psychology, community health, and special education. She strives to make more contributions to the advancement of science.

Kristina Boyd
Lingzi Lu Memorial Award

Boyd is a December 2019 graduate of the biostatistics MS program at the University of Pittsburgh Graduate School of Public Health and a 2013 graduate of the Massachusetts Institute of Technology. During her time as a graduate student, she published two papers on rare cancer incidence and risk with longtime mentor Dianne Finkelstein. She was also a teaching assistant for three graduate-level statistical methods courses. In 2018, during her second year of graduate study, she was hired as a statistician at the Allegheny County Health Department, where she remains employed. Her current work focuses on extending methods developed in her thesis to other overdose surveillance domains. Her long-term career goal is to earn a doctoral degree, become a professor, and introduce students—especially those from nontraditional backgrounds—to the wonderful world of statistical practice. Outside of academia, she enjoys spending time with her son, Garrett, age 4.

Lauren Frisbie
John J. Bartko Scholarship

Frisbie earned her MPH from the University of Washington and currently works as a research analyst in the Center for One Health Research. Her focus is integrating and analyzing antimicrobial resistance data from human, animal, and environmental sources to answer public health questions. Most weekdays, you'll find her hunched over RStudio cleaning data. On the weekends, you can find her mountain biking, open-water swimming, or snowboarding in the Seattle area. ∎

Obituary

Steven V. Burke

Steven V. Burke of Monroe, Connecticut, passed away suddenly at age 57 on December 6, 2019.

Steven was born on August 2, 1962, in St. Paul, Minnesota; grew up in Arlington, Virginia; and spent most of his adult life in New Jersey and Connecticut. He was a man who could sit down with anyone and ask questions they'd never been asked with a vocabulary as vast as a word-of-the-day calendar. He was enthusiastic and kind as a favorite grade-school teacher and possessed an empathetic nature as immediate as a best friend.

Steven proudly earned both his bachelor's and master's degrees from Virginia Tech and would never fail to remind everyone his education was fully compensated by his *Washington Post* paper route. He had a distinguished and diversified career as a statistician, first in consumer products and eventually in pharmaceutical clinical research. He was extremely dedicated to his work and passionate about supporting his family. His philosophical mind contributed to him being an avid reader and endearingly long-winded conversationalist.

Steven enjoyed trips to the ocean, inhaled bran of all kinds, possessed an uncanny Dairy Queen radar, could name most any song and artist within a moment, cherished walks and bike rides with his wife, reveled in Zen literature, and—though he experienced a concurrently hilarious and distressing treadmill accident years ago—maintained a fervor for running. His greatest enjoyment was simply found in time spent with his family and friends—including the furry ones. Steven was a devoted, excitedly-in-love husband and a genuinely wonderful son, brother, uncle, friend, and colleague. He will be deeply missed.

View his entire obituary at *bit. ly/2NobxbN*.

Ellis R. Ott Scholarship

The Statistics Division of the American Society for Quality has $7,500 scholarships available to support students enrolled in, or accepted into enrollment in, a master's degree or higher program with a concentration in applied statistics and/or quality management. This includes the theory and application of statistical inference, statistical decision-making, experimental design, analysis and interpretation of data, statistical process control, quality control, quality assurance, quality improvement, quality management, and related fields, though the emphasis is on applications as opposed to theory.

During the last 23 years, scholarships totaling more than $345,000 have been awarded to 60 students.

2019–2020 Scholarship Winners

Patricia Aubel
University of California at Davis
Master of Science Category

Kayla Reiman
Carnegie Mellon University
Master of Science Category

Scholarship Governing Board

Lynne Hare
J. Stuart Hunter
Tom Murphy
Dean V. Neubauer
Robert Perry
Susan Schall
Ronald Snee
J. Richard Trout
Neil Ullman

Qualified applicants must have graduated in good academic standing in any field of undergraduate study and be studying at US or Canadian institutions; online programs are excluded. Scholarship awards are based on demonstrated ability, academic achievement, industrial and teaching experience, involvement in student or professional organizations, faculty recommendations, and career objectives.

Application instructions and forms should be downloaded from *https://my.asq.org/communities/files/177/2559*. Forms are due by April 1.

For more information, contact Lynne B. Hare at 55 Buckskin Path, Plymouth, MA 02360 or *lynne.hare@comcast.net*. ◼

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

Program	Deadline	Nominations	Questions
Edward C. Bryant Scholarship Trust Fund	March 1, 2020	*awards@amstat.org*	
Causality in Statistics Education Award	March 1, 2020	*educinfo@amstat.org*	
Excellence in Statistical Reporting Award	March 1, 2020	*awards@amstat.org*	
ASA Fellows	March 1, 2020	*awards@amstat.org*	
ASA Mentoring Award	March 1, 2020	*awards@amstat.org*	Wendy Martinez *martinez.wendy@bls.gov*
Outstanding Statistical Application Award	March 1, 2020	*awards@amstat.org*	
Statistical Partnerships Among Academe, Industry, and Government (SPAIG) Award	March 1, 2020	awards@amstat.org	Pamela D. McGovern *pam.mcgovern@nass.usda.gov*
Biopharmaceutical Section Scholarship Award	March 15, 2020	*community.amstat.org/biop/awards/scholarship*	
Founders Award	March 15, 2020	*awards@amstat.org*	Wendy Martinez *martinez.wendy@bls.gov*
Government Statistics Section Wray Jackson Smith Scholarship	April 1, 2020	*awards@amstat.org*	Kevin Konty *kkonty@health.nyc.gov*
Links Lecture Award	May 1, 2020	*awards@amstat.org*	Barry W. Johnson *barry.w.johnson@irs.gov*
Health Policy Statistics Section Achievement Awards	September 15, 2020	*hpssawards2020@gmail.com*	
Lester R. Curtin Award	October 15, 2020	*awards@amstat.org*	
Deming Lecturer Award	October 15, 2020	*awards@amstat.org*	
Lingzi Lu Memorial Award	October 15, 2020	*awards@amstat.org*	
Monroe. G. Sirken Award in Interdisciplinary Survey Methods Research	December 15, 2020	*awards@amstat.org*	Aaron Maitland *amaitland@cdc.gov*

chapternews

North Carolina Chapter

The North Carolina Chapter held its annual fall dinner on December 6, 2019. More than 60 statisticians from the NC ASA community gathered to celebrate the year's theme: Statistics: Past and Future.

David A. Dickey of North Carolina State University took attendees on a walk down memory lane in his talk, "The Way We Were," while Sudipta Dasmohapatra of Duke University looked to the future in her talk, "The Role of Statistics and Statisticians in the Data Science Buzz World." The talks were a mix of humor and insight.

Emily Griffith, North Carolina Chapter president, presents the Senior Statistician Award to Alyson Wilson and Steve Marron during a fall dinner on December 6, 2019.

In addition, the North Carolina Chapter presented its annual awards. Steve Marron of The University of North Carolina at Chapel Hill and Alyson Wilson of North Carolina State University each won the Senior Statistician Award for their outstanding contributions to the theory and practice of statistics, particularly for their role in developing the subject in North Carolina. Fang Chen of SAS won the Service Award for his longstanding support of the North Carolina Chapter.

Survey Research Methods

Recapping 2019 must start with JSM 2019, at which the Survey Research Methods Section (SRMS) sponsored 13 invited, 18 topic-contributed, seven contributed, four speed, and two poster sessions, along with five round-tables. SRMS also offered two webinars in 2019: "Multi-level Models and Poststratificiation" (Yajuan Si) and "Use of Census Data" (Nancy Bates); this latter webinar was offered jointly with the Government Statistics Section and Washington Statistical Society.

Also during 2019, SRMS conducted its periodic review of the SRMS charter. A proposed revision addressing redundant information will be subject to approval by members during the 2020 annual election.

During 2020, SRMS will be awarding an outstanding section service award every three years as part of an ASA initiative. A request for nominations, due by March 1, has been distributed to members.

JSM 2020 will be in Philadelphia, August 1–6, with the theme *Everyone Counts: Data for the Public Good*. Much of the work we do in SRMS focuses on reducing total survey error (all the way from data collection through dissemination), and one important component to achieving this goal is to demonstrate the data we collect and the estimates we provide are not only useful but essential for our society to make fact-based decisions that ultimately serve the public good.

section news

In 2017, the ASA launched the Count on Stats campaign to highlight all the ways in which the US federal statistical agencies work to provide accurate estimates related to the economy, agriculture, health, crime, etc. As we transition into a new decade, we continue to face response rate and big data challenges, with questions arising about how we can use the abundance of one form of data to combat the shortage of another. How do we continue to provide valid and reliable data for the public good in an ever-changing survey climate?

SRMS is working to provide members with multiple opportunities to explore these questions further. In addition to an array of webinars throughout the year and pertinent invited and topic-contributed sessions at the Joint Statistical Meetings, SRMS is a sponsor for the International Conference on Establishment Surveys VI, to be held in New Orleans June 15–1. Look for the section's inserts in the conference bags; SRMS sponsorship is also funding student travel awards and a student contest award.

In January and July, SRMS publishes newsletters with all the latest SRMS news. All these newsletters can be found at *https://community.amstat.org/ surveyresearchmethodssection/ programs/newsletter.* ∎

Statistics in Defense and National Security

In October of 2019, Laura Freeman traveled to the United States Military Academy at West Point to brief staff and faculty on statistical methods in test and evaluation within the Department of Defense. Freeman is the Assistant dean for research in the National Capital Region at the College of Science, associate director of the Intelligent Systems Lab at the Hume Center, and research associate professor in the department of statistics at Virginia Tech.

Lieutenant Colonel Nicholas Clark of the department of mathematical sciences at West Point and speaker Laura Freeman of Virginia Tech.

In her talk, Freeman described how statistical methods have helped solve the complex challenge of deciding how much testing is enough in defense acquisition programs. She also highlighted how the emergence of vast amounts of software, cybersecurity threats, new modeling capabilities, and machine learning algorithms challenge the existing processes and demand another look at using statistical engineering to test defense systems.

This visit was facilitated by the Statistics in Defense and National Security (SDNS) Speaker Program, which aims to foster communication between statisticians and familiarize students with the role of statistics in defense and national security. If you are interested in having an SDNS speaker visit your university, contact the SDNS Speaker Committee chair, Joseph Warfield, at *joseph.warfield@jhuapl.edu.* If selected, SDNS will reimburse up to $500 for expenses related to the speaker visit.

Government Statistics

From around the world came 150 people to participate in the Seasonal Adjustment Practitioners Workshop (SAPW) at the Bureau of Labor Statistics in November of 2019, which included presentations by participants from Canada and New Zealand.

Ninety-five people attended in person and the rest joined remotely from the US, UK, Mexico, Spain, Italy, Austria, and Romania. Participants shared experiences in producing seasonal adjustments; gave details of interesting time series estimation problems and possible solutions; discussed best practices in seasonal adjustment, time series modeling, or benchmarking; shared lessons learned, tips, and shortcuts; and presented applied research in the practice of time series estimation.

The featured speaker was Jonathan Wright, a professor in the department of economics at The Johns Hopkins University.

Participant feedback was enthusiastic. "Congratulations on a very successful event! As

> "...I came away with many potential connections to make and ideas to explore."

with the first two workshops, the day included very interesting talks, and I came away with many potential connections to make and ideas to explore," said Steve Matthews of Statistics Canada. "In particular, the remote access via Zoom meeting was very smooth; the quality of the video and audio were both excellent. The remote access was a game-changer for me, and I appreciate the effort your team put in to get it all working ahead of time. I do hope that the series will continue."

Slides and recordings will be posted on the Government Statistics Section website (*community.amstat. org/governmentstatisticssection/home*). Questions about the workshop can be emailed to *esmd.seasonal. workshop@census.gov*. ∎

Pfizer/ASA/Columbia University Symposium on
Risks and Opportunities of AI in Clinical Drug Development

May 18, 2020
8:30 a.m. – 5:00 p.m.
Columbia University

Join distinguished **statisticians, data scientists,** and **regulators** as they address the challenges and opportunities of advancing the use of artificial intelligence in drug development and deployment.

REGISTRATION
Includes breakfast and lunch
Regular – $150
Student – Complimentary

For more information, see *www.amstat.org/aipm2020* or contact *meetings@amstat.org*.

This symposium was made possible with the generous support of Pfizer Inc., Columbia University, and the American Statistical Association.

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

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

›› Indicates events posted since the previous issue

SIAM CONFERENCE on UNCERTAINTY

Garching, Germany

2020

March

24–27—SIAM Conference on Uncertainty Quantification (UQ20), Garching, Germany
For details, visit *siam-uq20.ma.tum. de* or contact Jade Daniels, 3600 Market St., Philadelphia, PA 19104; (215) 382-9800; *daniels@siam.org*.

April

*29—13th Annual UPenn Conference on Statistical Issues in Clinical Trials: Cluster Randomized Clinical Trials: Opportunities and Challenges, Philadelphia, Pennsylvania
For more information, contact Jonas Ellenberg, 423 Guardian Drive, Suite 617, Philadelphia, PA 19104; (215) 573-3904; *jellenbe@pennmedicine. upenn.edu.*

May

5–7—SIAM Conference on Mathematics of Data Science (MDS20), Cincinatti, Ohio
For more information, contact Adrianne Ali, 3600 Market St., Philadelphia, PA 19104; (215) 382-9800; *ali@siam.org*.

8–10—The 8th Workshop on Biostatistics and Bioinformatics, Atlanta, Georgia
For details, visit *math.gsu.edu/ yichuan/2020Workshop/index.html* or contact Yichuan Zhao, 1342, 25 Park Place, Atlanta, GA 30303; (404) 413-6446; *yichuan@gsu.edu.*

*18—Pfizer/ASA/Columbia University Symposium on Risks and Opportunities of AI in Clinical Drug Development, New York, NY
For more information, contact Stephen Porzio, 732 N. Washington St., Alexandria, VA 22314; (703) 684-1221; *meetings@amstat.org.*

Old stone church, Cincinnati, Ohio

SIAM Conference on Mathematics of Data Science

Perelman
School of Medicine
UNIVERSITY of PENNSYLVANIA

University of Pennsylvania

Center for Clinical Epidemiology, Biostatistics, & Informatics

13th Annual UPenn Conference on Statistical Issues in Clinical Trials

April 29, 2020

Cluster Randomized Clinical Trials (CRTs): Challenges
and Opportunities

Website and Registration Opens: January 1, 2020

www.cceb.med.upenn.edu/events/13th-annual-conference-statistical-issues

METHODS	
David Murray, PhD (NIH)	Overview: Innovations in Design and Analysis of Group or Cluster Randomized Trials
Victor DeGruttola, ScD (Harvard)	Using network-and individual-level information in design and analysis of clustered trials
Luke J. Keele, PhD (University of Pennsylvania)	Complexities Caused by Noncompliance in Cluster Randomized Trials
James P. Hughes, PhD (University of Washington)	Current issues in the design and analysis of stepped wedge trials

APPLICATIONS	
Lawrence H. Moulton, PhD (Johns Hopkins University)	Randomization: Beyond the Closurization Principle
Ira Longini, PhD (University of Florida)	The ring vaccine trial design for the estimation of vaccine efficacy and effectiveness during infectious disease outbreaks
Deborah J. Donnell, PhD (University of Washington)	Challenges for implementing CRTs: from Hawthorne effect to measurement bias
Weili He, PhD (AbbVie)	Practical considerations in utilizing cluster randomized trials in medical research

PANEL DISCUSSANTS	
Karla Hemming, PhD	University of Birmingham
David Murray, PhD	National Institutes of Health
Michael Proschan, PhD	National Institutes of Health
Jeffrey Roberts, MD	US Food and Drug Administration
Alisa Sheilds-Stephens, PhD	University of Pennsylvania
Monica Taljaard, PhD	Ottawa Hospital Research Institute

NEWPORT BEACH, CALIFORNIA
Statistical Learning and Data Science/Nonparametric Statistics (SLDS2020)

»*27–29—SLDS 2020, Newport Beach, California
For details, visit *https://asaslds. github.io/SLDS2020* or contact Po-Ling Loh, 1300 University Ave., Madison, CA 53706; *polingloh@ gmail.com.*

June

1–5—NSF-CBMS Regional Research Conference: Parallel Time Integration, Michigan Technological University, Houghton, Michigan
For details, visit *conferences.math. mtu.edu/cbms2020* or contact Benjamin Ong, Michigan Tech University, Houghton, MI 49931; *ongbw@mtu.edu.*

*3–6—2020 Symposium on Data Science & Statistics, Pittsburgh, Pennsylvania
For more information, visit *ww2. amstat.org/meetings/sdss/2020* or contact ASA Meetings, 732 N. Washington St., Alexandria, VA 22314; (703) 684-1221; *meetings@ amstat.org.*

15–18/2020—10th International Workshop on Applied Probability (IWAP2020), Thessaloniki, Greece
For more information, visit *iwap2020.web.auth.gr* or contact George Tsaklidis, Aristotle University of Thessaloniki, University Campus, 54124, Thessaloniki, Greece; +302310997964; *tsaklidi@math. auth.gr.*

21–23—The Fifth Workshop on Higher-Order Asymptotics and Post-Selection Inference (WHOA-PSI), St. Louis, Missouri
For details, visit *www.math.wustl. edu/~kuffner/events.html* or contact Todd Kuffner, 1 Brookings Drive, Campus Box 1146, Saint Louis, MO 63130; *kuffner@wustl.edu.*

Saint James Church - Brno, Czech Republic

22–26—International Statistical Ecology Conference (ISEC2020), Sydney, Australia
For more information, visit *isec2020.org* or contact David Warton, School of Mathematics and Statistics, UNSW Sydney, International 2052, Australia; +61405781724; i*sec2020@unsw.edu.au.*

24–27—5th International Workshop on Functional and Operatorial Statistics (IWFOS 2020), Brno, Czech Republic
For details, visit *iwfos2020.sci.muni.cz* or contact David Kraus, Kotlárská 2, Brno, International 611 37, Czech Republic; *david.kraus@mail.muni.cz.*

25–27—Open Problems in Parametric Likelihood-Based Inference, St. Louis, Missouri
For details, visit *www.math.wustl.edu/~kuffner/events.html* or contact Todd Kuffner, 1 Brookings Drive, Campus Box 1146, Saint Louis, MO 63130; *kuffner@wustl.edu*.

»29–7/3—2020 World Meeting of the International Society of Bayesian Analysis (ISBA2020), Kunming, China
For more information, visit *bayesian.org/isba2020-home* or contact Li Ma, Statistical Science Box 90251, 214 Old Chemistry, Durham, NC 27708; (919) 684-2871; *li.ma@duke.edu.*

ASA Science Policy Fellowships
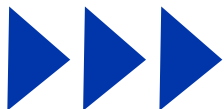
Applications now being accepted!

Are you interested in science policy and helping your profession? **Apply for the ASA Science Policy Fellowship** and spend 1–2 years in Washington, DC, working to elevate the profile of statistics in policymaking and advocating on behalf of the profession.

The fellow will be based at the ASA headquarters in Alexandria, Virginia, but will spend the bulk of her/his time in Washington, advocating for statistics and experiencing first-hand how federal science policy is formed.

Applications for the fellowship are requested by March 31.

https://ww2.amstat.org/policy/fellowship.cfm

Seoul, South Korea

July

5–10—International Biometric Conference (IBC), Seoul, South Korea
For more information, visit www.biometricsociety.org/2018/07/ibc-2020-seoul-preview or contact Kristina Wolford, 1120 20th St. NW, Suite 750, Washington, DC 20036; (202) 712-9049; *conference@biometricsociety.org.*

6–10—International Conference on Robust Statistics (ICORS 2020), Vienna, Austria
For details, contact Peter Filzmoser, Wiedner Hauptstr. 8-10, Vienna, International 1040, Austria; 43-1-58801-10560; *P.Filzmoser@tuwien.ac.at.*

»*16–17—2020 Data Science & Intelligent Systems Conference, London, United Kingdom
For more information, visit *www.dsis2020.com* or contact Nathan Walsh, 5201 Great America Pkwy., #320, Santa Clara, CA 95054; (408) 352-1010; *nathanwalsh2020@gmail.com.*

August

*1–6—2020 Joint Statistical Meetings, Philadelphia, Pennsylvania
For more information, contact ASA Meetings, 732 North Washington St., Alexandria, VA 22314; (703) 684-1221; *meetings@amstat.org.*

»3–7—NSF-CBMS Regional Research Conference: Gaussian Random Fields, Fractals, Stochastic Partial Differential Equations, and Extremes, Huntsville, Alabama
For details, visit *www.uah.edu/math/cbms2020* or contact Dongsheng Wu, Mathematical Sciences Department, University of Alabama, Huntsville, AL 35899; *dongsheng.wu@uah.edu.*

Philadelphia
JSM 2020
Philadelphia, Pennsylvania, August 1-6, 2020

Santa Cruz Breakwater Lighthouse

6–8—26th ISSAT International Conference on Reliability and Quality in Design, Miami, Florida
For more information, visit *www.issatconferences.org/rqd2020.html* or contact Conference Secretary, PO Box 281, Edison, NJ 08818; *rqd@issatconferences.org.*

»10–14—NSF-CBMS Regional Research Conference: Bayesian Forecasting and Dynamic Models, Santa Cruz, California
For details, visit *cbms.soe.ucsc.edu/2020* or contact Raquel Prado, UC Santa Cruz, Santa Cruz, CA 95064; *raquel@ams.ucsc.edu.*

October

9–11—International Conference on Advances in Interdisciplinary Statistics and Combinatorics (AISC-2020), Greensboro, North Carolina
For details, visit *https://sites.google.com/uncg.edu/aisc2020* or contact Sat Gupta, Department of Mathematics and Statistics, 317 College Ave., 116 Petty Building, Greensboro, NC 27455; (336) 554-4608; *sngupta@uncg.edu.*

November

4–6—Big Data Meets Survey Science (BigSurv20), Utrecht, The Netherlands
For more information, visit *www.bigsurv20.org* or contact Peter Lugtig, Padualaan 14, Utrecht, International 3584CH, The Netherlands; +31 30 2537761; *info@bigsurv20.org.*

Vittala Temple Stone Chariot
Hampi, Karnataka, India

December

15–17—28th International Workshop on Matrices and Statistics (IWMS 2020), MAHE, Manipal, India
For details, visit *carams.in/events/international-workshop-on-matrices-and-statistics* or contact Manjunatha Prasad Karantha, VI Floor, Health Science Library Building, Manipal Academy of Higher Education, Manipal, International 576104, India; +91 9980100886; *kmprasad63@gmail.com.*

17–19—International Conference on Linear Algebra and Its Applications (ICLAA 2020), MAHE, Manipal, India
For more information, visit *carams.in/events/iclaa2020* or contact Manjunatha Prasad Karantha, VI Floor, Health Science Library Building, Manipal Academy of Higher Education, Manipal, International 576104, India; +919980100886; *kmprasad63@gmail.com.*

2021

July

»15–18—Statistics 2021 Canada, Montréal, Québec
For details, visit *www.concordia.ca/artsci/events/statistics-2021.html* or contact Yogendra Chaubey, 1455 De Maisonneuve Blvd. W., Montréal, Québec, H3G 1M8, Canada; 1 (514) 848-2424; *stat2021@concordia.ca.*

August

»*7–12—2021 Joint Statistical Meetings, Seattle
For more information, contact ASA Meetings, 732 North Washington St., Alexandria, VA 22314; (703) 684-1221; *meetings@amstat.org.*

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Maryland

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UW Medicine
DEPARTMENT OF REHABILITATION MEDICINE

ASSISTANT PROFESSOR (BIOSTATISTICIAN)

The University of Washington's School of Medicine invites applications for a biostatistician in the Department of Rehabilitation Medicine. This position is a full-time (12-month) faculty position at the Assistant or Associate Professor rank, dependent on experience and qualifications. The appointment is without tenure (consistent with all faculty appointments within the Department). Without-tenure faculty members have the same rights, responsibilities, and obligations as tenure-track and tenured faculty members at those ranks. The ideal start date for the position will be April 1, 2020.

We are seeking a biostatistician who has interest and background in health-related research and is interested in collaborating with other faculty in our department in the development and conduct of research projects in the field of rehabilitation. The primary responsibility of the biostatistics faculty member will be to collaborate with other faculty in the development and conduct of rehabilitation research projects. Additional responsibilities will include providing biostatistical consultation to students in the Rehabilitation Science PhD program, and general statistical consulting to department faculty, residents, and fellows. All University of Washington faculty engage in teaching, research, and service. Thus, the position would also involve expectations for service (e.g., being a member of committees) and teaching (e.g., lectures in established courses). In addition, for interested candidates, there is also the opportunity for teaching in core courses in the Rehabilitation Science PhD program.

The Department of Rehabilitation Medicine is nationally recognized for excellence in education, research, and clinical care. The Department's various research programs as well as academic programs including the Doctor of Physical Therapy (DPT), Master of Prosthetics and Orthotics (MPO), Master of Occupational Therapy, and PhD in Rehabilitation Science programs, provide rich opportunities for interdisciplinary research, teaching, and learning. The Department has an exceptional record of successful extramural research funding and interprofessional collaboration. The University of Washington and the Department of Rehabilitation Medicine are committed to continually building an inclusive culture and believe that diversity fosters excellence.

Candidates must have a PhD (or foreign equivalent) in biostatistics or a closely related field. Please see our posting on Interfolio for additional requirements. Interested candidates should apply via Interfolio at *apply.interfolio.com/70924*. We will start reviewing applications immediately, and review on an ongoing basis until the position is filled. For questions about the position, contact Dr. Mark P. Jensen, Search Committee Chair, by email: *ahrrehab@uw.edu*

■ The Emmes Company in Rockville, MD, a full-service Contract Research Organization, has openings for PhD-level statisticians to serve on and lead multi-disciplinary project teams supporting clinical research with great public health impact across a range of disease areas. Requirements: Solid background in statistical methods with a PhD in biostatistics/statistics/epidemiology, strong oral and written communication skills, and leadership potential. Apply directly online at *www.emmes.com*. EOE.

New York

■ Department of Biostatistics at the University at Buffalo invites applications for tenure-track assistant professor expected to develop an extramurally funded independent research program, with emphasis on graduate-level teaching, mentoring graduate and undergraduate students, developing interdisciplinary collaborations and engaging in service activities. PhD in statistics/biostatistics or related quantitative fields required with experience and/or strong interest in interdisciplinary research preferred. Anticipated start August 2020. Apply online: *www.ubjobs.buffalo.edu/postings/22635*. University at Buffalo is an EOE.

Pennsylvania

■ The Wharton Departments of Statistics, and Operations, Information and Decisions (OID) of the University of Pennsylvania, are seeking a postdoctoral researcher in energy analytics and machine learning under the supervision of Professors Edgar Dobriban, Eric Tchetgen (Statistics) and Steven O. Kimbrough (OID). The candidate will develop and apply analytics (statistical and machine learning, causal inference, optimization, market design) to renewable energy. Apply at: *https://statistics.wharton.upenn.edu/recruiting/postdoctoral-researcher-in-energy-analytics-and-machine-learning*. The University of Pennsylvania is an EOE. Minorities / Women / Individuals with disabilities / Protected veterans are encouraged to apply.

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Do statisticians have a favorite random statistic? If so, what is it?

Bonny P. McClain • @datamongerbonny
Heteroscedasticity. Simply because I like to say it. Also I am a data analyst so perhaps I am just easily amused.

Vlake Phoenix • @VlakePhoenix
The distribution of prime numbers.

Caleb King • @ckingstats
How about the fact that 78% of statistics are made up on the spot? 😉

Steve Wang • @SteveWang251
I like the sample maximum because it plays an important role in my research.

Erfan Pirbhai
87% of people who die in car crashes have had carrots for dinner in the last 4 days preceding the crash 😬

Todd Swanson
If it is a favorite, I doubt that it is random.

Yossi Levi the log likelihood chi square test

Cliff Claven
Frequency distribution or confidence interval

Kel Zou Kurtosis

Ed Hutchins, Cree Product Engineering Manager
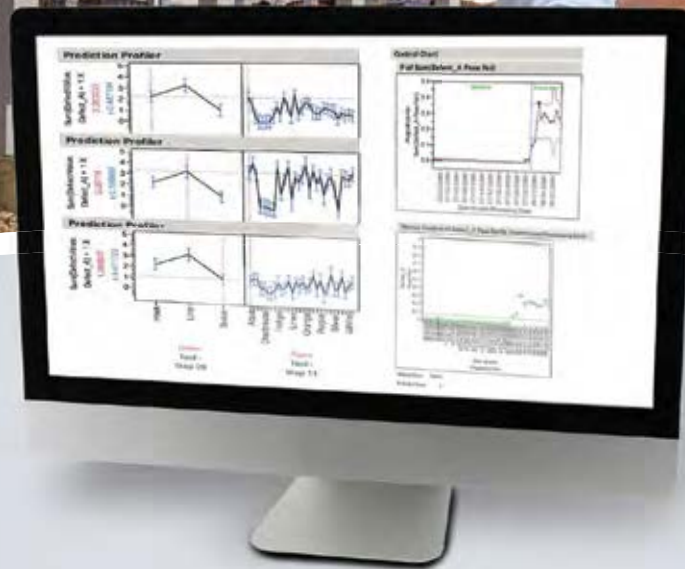
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