May 2017 • Issue #479

AMSTATNEWS

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

JSM Is Baltimore Bound!

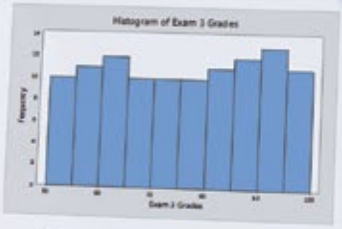
ALSO:

ASA Visits Capitol Hill During Seventh Climate Science Day

Pastimes of Statisticians: What Does Fred Faltin Do When He Is Not Being a Statistician?

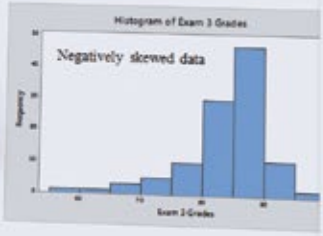
Everything you need to plan your class.

Mean (~71.86) and median (73) are about the same



Mean (~75.04) and median (75) are about the same

Mean (~66.32) is greater than the median (62)



Mean (~83.50) is less than the median (89)

Measures of Spread

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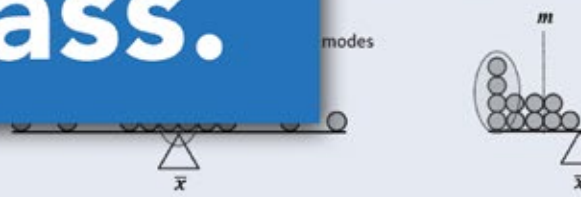

Also noted in each picture are the modes (circled) and location of the definitions of these statistics are contained in the following pages.

Example 1

Ten batteries from brands A, B, and C were tested to determine their

Brand A:	41	289	214	102	38	94	179
Brand B:	39	65	22	64	22	191	99
Brand C:	24	95	139	122	41	360	318

Here are the lifetimes plotted as comparison dotplots in Minitab:

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AMSTATNEWS

MAY 2017 • ISSUE #479

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

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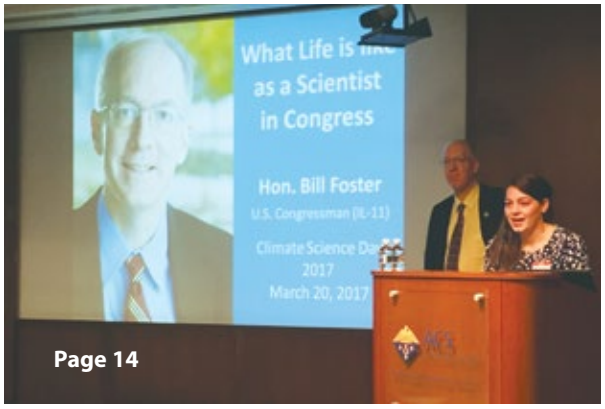
The American Statistical Association is the world's largest community of statisticians. The ASA supports excellence in the development, application, and dissemination of statistical science through meetings, publications, membership services, education, accreditation, and advocacy. Our members serve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

features



The ASA's Amy Nussbaum introduces Rep. Bill Foster (D-IL) as one of the keynote speakers for the Climate Science Day workshop.

columns

This column focuses on what statisticians do when they are not being statisticians. If you would like to share your pastime with readers, please email Megan Murphy, *Amstat News* managing editor, at *megan@amstat.org.*

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*.

NEWS & ANNOUNCEMENTS

5th Nonclinical Biostatistics Conference

A conference devoted to nonclinical biostatistics will take place June 12–14 at the Rutgers University Fiber Optics Building.

With the theme "Statistics Accelerating the Pharmaceutical Sciences," the conference will provide a venue for the presentation and discussion of scientific and statistical issues relevant to nonclinical biostatistics. The program features 2 $^{1}/_{2}$ days of talks, a poster session, and special sessions for graduate students. Keynote speakers are ASA President-elect Lisa LaVange and John Storey from Princeton University.

The full program and a set of abstracts are available at *https://goo.gl/SDkOEs*.

Graduate students are encouraged to submit poster abstracts to *Katja.s.Remlinger@gsk.com*. Student registration is $120, with limited scholarships available to offset travel costs.

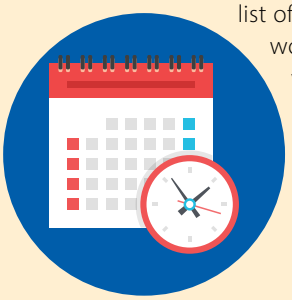
Questions, suggestions, and comments may be directed to *NovickS@medimmune.com*.

Nominate a woman in the statistical sciences for the Norwood Award

The department of biostatistics and the school of public health at the University of Alabama at Birmingham (UAB) seeks nominations for the Janet L. Norwood Award for Outstanding Achievement by a Woman in the Statistical Sciences. The award recipient will deliver a lecture at the UAB award ceremony in September, as well as receive paid travel expenses, a $5,000 prize, and the award.

For details about the award, visit *https://goo.gl/DPfhlz*. Email nominations by June 23 to Charity Morgan, assistant professor of biostatistics, at *cjmorgan@uab.edu*.

For more upcoming events, check out the **ASA Calendar of Events** in this issue or, for the complete list of statistics meetings and workshops across the globe, visit *www.amstat.org/dateline*. Announcements are accepted from educational and not-for-profit organizations.



departments

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Bigger Isn't Always Better When It Comes to Data

Barry D. Nussbaum

Life is more than just a sample size. I think in my 40-year career with the U.S. Environmental Protection Agency, the single question I was asked most was, "What sample size do I need?" Frequently, the question was asked without any further explanation of the project, evoking my response of, "Sit down, let's talk." I was fascinated, and admittedly disappointed, that the premier reason people consulted with me was merely to ascertain the size of the sample. In fact, usually the sample size was the least of the problem. Let me give an example.

I was involved in a case that is quite old now, but demonstrates the premise so well. In the late 1970s, EPA ordered Chrysler Motors to recall a class of vehicles for excessive emissions of carbon monoxide. These were rather large vehicles with 360- and 400-inch^3 displacements. Even then, they were considered "muscle cars." But here comes the problem: How to measure the emissions from these cars, since they were already "in use." That is, instead of being on the assembly line, motorists like you and me were driving these. So how would you acquire a sample of them? That is just the beginning of the questions involving this sampling. In fact, let's start at the beginning and try to specify the population. Thinking back to college, this is not a simple case of picking balls out of an urn.

The population is: "Carbon monoxide emissions from well maintained and used 1975 model Chrysler vehicles under 100,000 miles not sold in California or Denver as measured on the Federal Test Procedure." That is a mouthful. Let's examine it a bit. The actual data we want are the carbon monoxide emissions as measured on the Federal Test Procedure (FTP). What is the FTP? It is a test in which the car is on a dynamometer (think of it as a treadmill for cars) under controlled temperature and humidity conditions and following a vehicle trace that mimics the average morning commute in Los Angeles. (Just discussing the FTP would consume enough President's Corner articles for the next six months. I will spare you.)

What is a well-maintained and used vehicle? One whose owner has dutifully followed the basic required maintenance, such as changing oil, and has not used the vehicle as a race car, on off-road terrain, to tow a boat, etc. Why stop at 100,000 miles? That was considered the "useful life" back then. What's wrong with California and Denver? California had its own set of emission standards, and Denver vehicles have different settings to adapt to high-altitude driving.

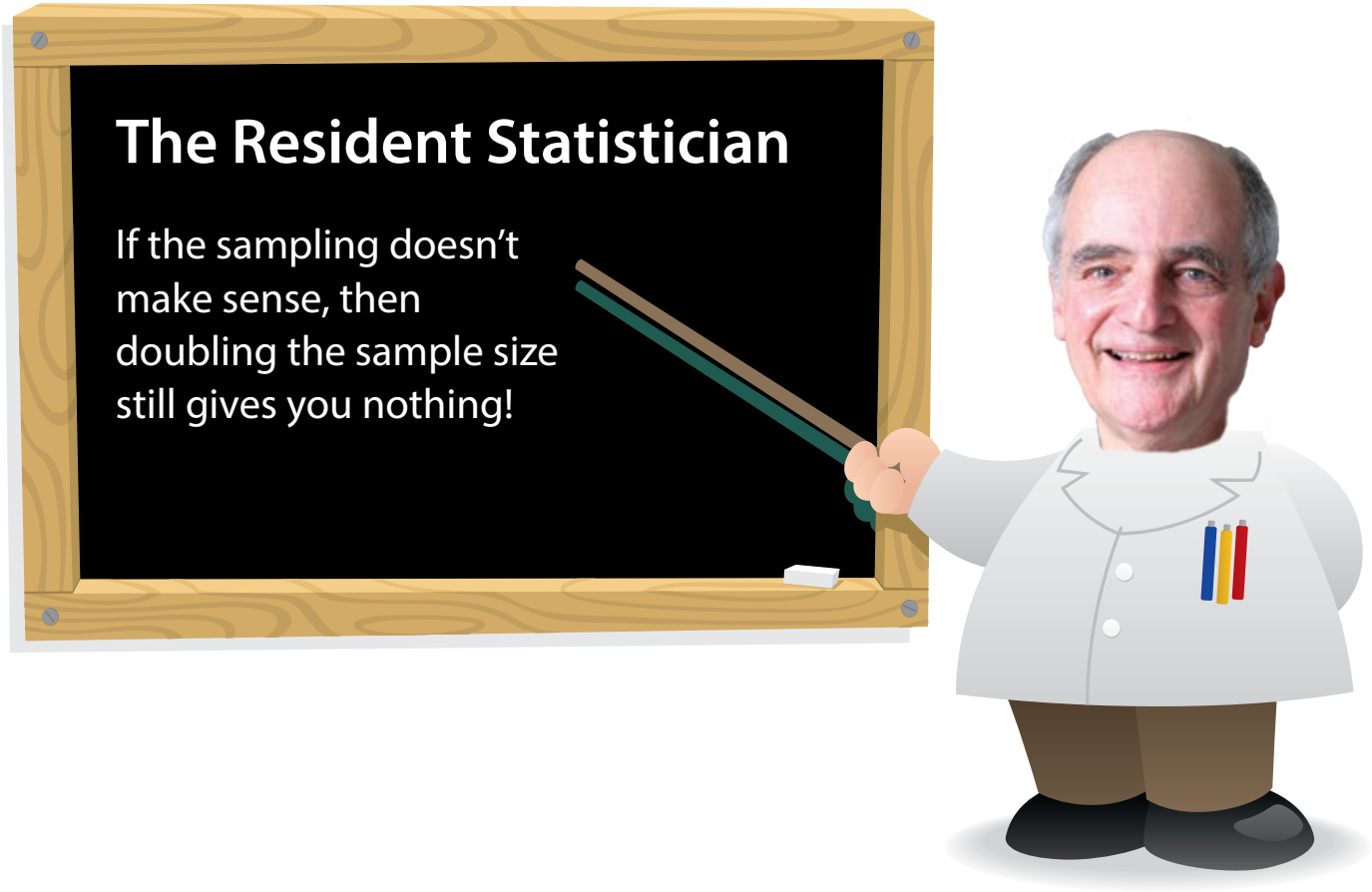
With these concerns in mind, we must figure out how to obtain a random, representative set of vehicles. EPA had a testing lab in Livonia, Michigan, so we used the Wayne County vehicle registration list to randomly select vehicles. If your vehicle was selected, we phoned several times at different hours of the day, sent registered mail, etc. to reach you. No substitution allowed for a convenience sample. But even if you were reached, we didn't know if the car was well maintained and used until we administered a rigorous questionnaire concerning your driving and maintenance habits. Assuming that was satisfied, why would you volunteer your car for government testing? We provided the following three-part incentive: a fully insured loaner vehicle, your car returned with our mechanics setting it to factory specifications, and a $50 U.S. Savings Bond (remember, this was the 1970s). So, after going through all this, the vehicle was submitted to testing.

Notice a subtle nuance here. Normally, you have a population and you sample elements from the population. Here, we really didn't know if the vehicle's emissions belonged to the population, due to the maintenance and use restrictions, until we administered the questionnaire *after* the vehicle had been randomly selected.

Now, with all these considerations satisfied, we finally come to the problem of sample size. Here the issue took an odd twist. Carbon monoxide emissions are clearly a continuous measurement. The most applicable probability distribution is the log normal distribution. However, this was a legal enforcement case and the Clean Air Act only considers a vehicle meeting or exceeding the applicable standards. So, perhaps counterintuitively, we used a binomial model! And how many did we sample? 10. Yes, just 10.

Prior ancillary data had indicated these vehicles were likely to exceed standards, and in fact all 10 did exactly that. Think about your binomial model. If the vehicles really did meet standards, the probability of observing all 10 failing is less than 1/1000. I suspect readers of this column can understand that low probability, but this case went to an administrative court hearing. The biggest concern was telling it succinctly to a judge, who was going to decide whether we won or lost the case. (Talk about a binomial outcome!)

Many of you have heard my mantra and the subject of my March President's Corner: "It's not what



we said, it's not what they heard, it's what they say they heard." In this situation, it was crucial that the judge understood us and said what he heard correctly. I am happy to report Judge Edward Finch did precisely that. We won the case.

The point of all this is that administering the proper sampling was more difficult than just specifying a sample size. And if the sampling were defective, a higher sample size would not remedy the situation. Sure, larger sample sizes are typically better than smaller ones, but the real problem is in the sampling.

By the way, why are larger sample sizes just "typically" better? There is a paper I wrote in conjunction with Nagaraj Neerchal and Pepi Lacayo ("IS a Larger Sample Size Always Better?", *American Journal of Mathematical and Management Science*, Vol. 28, Nos. 3&4, 2008) that shows this is not necessarily the case for some discrete distributions.

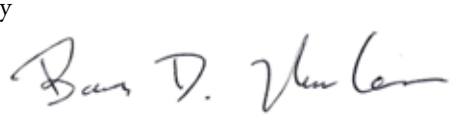
Of course, there is a flip side to this problem. Once I specified a sample size of 10 in the automobile emissions recall example, most of the engineers assumed 10 was always the answer. Heck, if it worked for Chrysler, why not for the others? Of course, this depends on what we know from prior ancillary data. This reminded me of a YouTube video clip many of you may have seen in which a scientist and statistician try to collaborate. The scientist is hung up on a sample of size three since that is what was always used. The clip is humorous, and in reflection, sad as well. Look for yourself at *https://goo.gl/9qdfjK*.

While I am thinking in terms of humorous determinations of sample size, I sometimes suggest we should stop at samples of size one, since otherwise variance starts to get in the way. I always have a smile, but sometimes think the audience is taking me seriously. (Note to Barry: Be careful here!)

Why my concern with a rather old case involving a small sample? There are two reasons. I think because we currently have a fascination with Big Data—large volumes, velocity, variety, and, hopefully, veracity—we sometimes forget the beautiful basic utility of inferential statistics: getting a lot of information from small, but well-constructed, samples. Second, again With Big Data in mind, I wanted to set straight the importance of the raw data, datum by datum. This does not go away when we are deluged with data. I will write about my thoughts regarding Big Data in a future column.

So, when all is said and done, I am a bigger believer in the quality of data, not the quantity.

Significantly forward,
Barry



PhD Student Credits Math Alliance with Success

The National Alliance for Doctoral Studies in the Mathematical Sciences is a program with a goal of ensuring that every under-represented or under-served American student with talent and ambition has the opportunity to earn a doctoral degree in a mathematical science. There are many ways to become involved with the Math Alliance, whether you are an undergraduate student, a graduate student, or a faculty member. More information can be found at https://mathalliance.org.

Widad Abdalla, Math Alliance Doctoral Scholar

In May of 2011, I graduated from the University of Puerto Rico – Cayey with a bachelor's degree in mathematics, a minor in accounting, and a certification from the Honors Studies Program. Then, in 2013, I graduated from the University of Puerto Rico – Mayaguez with a master's degree in applied mathematics. My professional goal is to earn a doctorate and contribute to strengthening research in Puerto Rico through my work.

When I started college, I was pursuing a degree in chemistry because my goal was to go to medical or dentistry school. However, for as long as I can remember, mathematics has been my favorite subject. The only reason I did not contemplate a career in mathematics was because I did not know what I could do with a mathematics degree. So, for me, studying mathematics was never an option. It was only when I started to get into more advanced mathematics classes that I decided to switch my major. My thought was that I was going to earn a bachelor's degree in something I am truly passionate about, even if I wouldn't practice anything related to my degree after graduating.

In 2008, Errol Montes-Pizarro (a Math Alliance mentor) recommended I attend the second annual Field of Dreams Conference. I still remember how enlightened I felt after returning home from that conference. Participants talked about possible career paths, undergraduate research experiences, graduate school, and financial aid, among other things.

It was also through the Math Alliance that I was able to get my first research experience for undergraduates (REU) at the University of Iowa. Throughout my undergraduate years, I had the privilege of completing five internships at various universities and research institutes. From these experiences, I gained valuable skills and life experience that prepared me for graduate school.

During my undergraduate research internship at the University of Iowa, I was able to write a grant proposal about anything related to mathematics and graduate school. Students used grant funds to travel to various conferences in prior years, but since I had already traveled to many conferences, I decided to seize that opportunity and organize a conference in Puerto Rico so all the math major students on the island could benefit. The Math Alliance accepted my proposal and the conference was held at the University of Puerto Rico – Cayey on November 13, 2010. The conference was modeled after the Field of Dreams Conference, and I organized it under the mentorship of Math Alliance Director Phil Kutzko.

After finishing my bachelor's degree, I decided to stay in Puerto Rico to pursue a master's degree in applied mathematics. I was unsure of what I wanted to get my degree in at first, which is one reason I stayed. But, when I started my master's degree, I got a teaching assistantship to fund my studies. It was then I discovered my passion for teaching mathematics and knew I wanted to work toward a PhD related to education.

Toward the end of my master's, my adviser and Math Alliance mentor Juan Ariel Ortiz recommended I again attend the annual Field of Dreams Conference. The Math Alliance was starting a uniform admission process (now called the Facilitated Graduate Admissions Program, F-GAP) that year, which consisted of pairing each aspiring PhD student with a mentor who evaluated their admission packets, including their personal statements and résumés. The mentor would provide recommendations for improving their admission profiles. After that, students would select the Math Alliance graduate program they wanted to apply to and send their materials all at once. As part of the process, all the programs I selected waived the admission fee. I also applied to several schools outside the Math Alliance, so I know the hardships that come with applying to PhD programs and can affirm how smooth the Math Alliance made that process for me.

Widad Abdalla is a third-year PhD student in education measurement and statistics at the University of Iowa and a Math Alliance doctoral scholar.

I am currently working toward a PhD in educational measurements and statistics, a program I learned about through the Math Alliance and Field of Dreams Conference. When I went to the booth for educational measurements and statistics, their first question was, "Are you interested in education?" This really caught my attention. I must admit this program intimidated me at first, because its entire foundation is statistics and I had never done statistics before. Although it was a program that was far outside my comfort zone, it was so interesting to me that I applied anyway.

Part of the admission process was an interview with the program director and chair of the department. It turns out both came from a mathematics background, just like me. They explained that the program consists of three areas: educational measurements, applied statistics, and an area of my choice, which could be applied mathematics, mathematics education, or mathematical statistics, among others.

MORE ONLINE
The Math Alliance Statistical Initiative will be meeting during the Joint Statistical Meetings in Baltimore. Look for more information about the meeting in the online program at *http://ww2.amstat.org/jsm.*

After the interview, I felt inspired and was confident this program was a good fit for me. It turned out I was able to combine my passions for mathematics, education, and now statistics into one degree. It's remarkable to see how I get to apply all my mathematics skills to this amazing area. It's been three years since I started my PhD, and I don't think I could be happier in another program.

I became a doctoral scholar for the Math Alliance when I started my PhD and travel every year to the annual Field of Dreams Conference to help recruit minority students. Also, I am one of the main contacts for the University of Puerto Rico (Cayey and Mayaguez campuses) for mathematics students who wish to pursue graduate studies in the mathematics education field.

The mentorship I received from the Math Alliance has allowed me to grow in various ways as an under-represented minority in the mathematical sciences. I know firsthand the value of these experiences, and I know the value of helping others. So, after I graduate with my PhD, I intend to become a Math Alliance mentor to help guide and recruit minority students interested in mathematical science fields. I have been a member of the Math Alliance for almost 10 years now, and I am a witness to how much the alliance has grown. I can honestly say I am where I am today, achieving my life-long dream of earning a doctoral degree, thanks to the Math Alliance. ■

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"Thanks to the advocacy and policy work of the ASA and its members, the engagement of statisticians is deemed critical to the federal efforts to strengthen the scientific basis of forensic science. Statisticians are actively sought and engaged by federal agencies in this area, and the ASA is working to broaden this success."

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Interview with Editor of *Statistics in Biopharmaceutical Research*

Frank Bretz is the editor of *Statistics in Biopharmaceutical Research*. We asked him to tell us a little about himself, the journal, and what we can expect to read in future issues.


Frank Bretz

Where did you grow up and go to school, and what or who inspired you to be a statistician?

I grew up on three continents, until I settled in Germany to study mathematics with a minor in biology. It was not until my PhD, however, that I developed a passion for statistics and recognized the necessity to bridge the gap between methodological developments and their applications in the day-to-day world.

Why did you become interested in being the editor for *SBR*?

The role of statistics in biopharmaceutical research is ever increasing, and *SBR* has played a major role in this regard since its launch in 2009. Thus, it is an honor to build upon the work of the previous editors and follow the call from Joe Heyse in the journal's first issue to "publish original peer-reviewed articles directed to researchers and applied statisticians from academia, government, and industry supporting the growing disciplines in the biopharmaceutical sciences."

Do you plan to make any changes to the journal while you are editor?

We need to acknowledge the globalization of the pharmaceutical industry. Complementing my other services in supporting the ASA's international outreach activities—particularly for the Biopharmaceutical Section—I would like to increase the visibility of *SBR* outside the United States. As a first step, we have enriched the editorial board with selected members from other regions to broaden the impact of *SBR* and encourage submissions from outside the United States.

At the same time, I would like to sharpen *SBR's* profile at the scientific interface between industry, academia, and regulatory agencies to advance practices of pharmaceutical drug development. This could be done by, for example, establishing dedicated sections such as a "regulatory corner" for a scientific exchange on newly developed statistical guidelines or a section on "out of box" statistical methods and practices.

What do you find most enjoyable about being a journal editor?

For me, I found that my past experiences as associate or guest editor for various journals was extremely rewarding. I found I was involved in handling new science at a detailed level unmatched by other venues. I also found myself getting new contacts in the form of authors and reviewers.

When the opportunity came around for me to take on the editorial responsibility for *SBR*, I did not need much convincing, but the reasons were more personal than anything else. Becoming an editor is not something you just choose; you need to see if you personally get something out of the job that makes it worth your while.

Ultimately, the most enjoyable part is the fact that I'm surrounded by an outstanding team that shoulders much of the heavy work: Jina Lee as the editorial coordinator, Eric Sampson as the journal manager, and, last but not least, the entire editorial board.

What do you find is the most challenging part of your job as editor?

To sign up as chief editor likely means signing up for a longer period to be able to fully embrace the flow of articles and handle all the problems that may occur. This is particularly true if you wish to see any results of your work while you are still associated with the journal.

What do you enjoy doing in your spare time?

Traveling, hiking, reading, immersing into different cultures. ■

Cultivating a Culture of Collaboration (with Gusto) in Your Career

Joseph C. Cappelleri, Pfizer Inc.

With more than 400 publications and at least twice as many conference presentations, Joseph C. Cappelleri is a prolific author and medical researcher in the pharmaceutical industry. He is a senior director of biostatistics at Pfizer Inc.

You've attributed your professional success to developing a reputation for cultivating a culture of collaboration. How have you done this, and what advice do you have for young professionals to do so?

My resource, or "secret sauce," for cultivating a culture of collaboration begins with taking ownership of myself. By continuing to learn and relearn, and building on my academic training, I have empowered and trained myself to relish and, in some cases, master whatever set of skills was being sought for its own intrinsic value—especially skills related to biopharmaceutical research.

The second ingredient in the special sauce of collaboration is to share a newly acquired knowledge or idea with others who have a common interest and stand to benefit. That means I have something of potential value to offer and engage other colleagues—be it a statistical method, novel application, methodological nuance, research or strategic idea, or something else.

The third factor, which combines self-interest and common interest, involves merging the other two factors to achieve a synergistic elevation and refinement of the research endeavor by capitalizing on each other's strengths to fortify the endeavor more than it would have been individually. In doing so, actively seek out collaborators with special talents or knowledge and give them something in return that has professional value to them. Choose a regular collaborator and bring out the best in each other.

My advice to young professionals, therefore, is to follow this recipe: Build your skill set unconditionally and regularly, share it with colleagues who share a common interest, and work together to make the summed contribution greater than its individual parts.

Beyond developing the reputation of someone to engage as a collaborator, what advice do you have for being a successful 21st-century statistician?

The successful 21st-century statistician needs to develop and refine first-rate quantitative skills through dedication, habitual study, and regular practice. Technical preparation is required through competency in general areas and mastery in particular areas. Substance reigns with precision and correctness as the hallmarks of analytical virtue.

That said, being technically smart is—to use a statistical phrase—a necessary but not sufficient condition. Strong and persuasive communication skills, especially to colleagues not versed in the language of statistics, is paramount regarding the methodological strengths and weaknesses of a particular strategy or position.

The influential 21st-century pharmaceutical statistician needs to understand the broad clinical, regulatory, and public health context. By being proactive with up-to-date knowledge, the pharmaceutical statistician can provide team members with strategic directives—which he or she is encouraged to originate and propose—and with guidance about design options and their tradeoffs, execution regarding quality control and risk mitigation, analytic strategies including their strengths and weaknesses, and effective interpretation of results. Having an intrinsic passion for statistical science, along with knowledge of the subject matter to which it is applied, builds a natural momentum toward co-authoring manuscripts and conference presentations on applied and methodological topics. And with that comes respect from others that opens the pathway for even more collaborative and authorship opportunities.

In the 21st century, a pharmaceutical statistician who continually learns technical and nontechnical aspects of his or her business will be in a favorable position to make a positive difference. Then the "magic" happens: sharing these learnings so as to redound benefit to individual team members. Such a statistician, therefore, is rendering value not only by providing his or her expertise, but also by elevating the work of others so they contribute more to a project than they would have otherwise. Bring out the best in others.

Your advice for professional success could be applied to many career tracks. What do you like about working in the pharmaceutical industry, and what advice do you have for students considering this sector?

The nature of the pharmaceutical industry—with a premium placed on ongoing innovation and research aimed at optimal patient care—makes it stimulating, rewarding, and challenging. I welcome the internal and external challenges that fuel stimulation and reward. I embrace the expectation to challenge myself to work with others in the most efficient manner and to adapt effectively in an

evolving and competitive environment. This expectation motivates me to elevate myself to be the best medical researcher possible because the ultimate objective and reward transcends personal ambition and has much higher stakes: It is about improving the quality and quantity of life for millions and millions of patients worldwide, and to do so with integrity, honor, and distinction.

I am fortunate and blessed to be part of a company and an industry that embodies the core values of collaboration, community, customer focus, innovation, integrity, leadership, performance, quality, and respect for people. These values are required for a company to have sustained, long-term success in the industry. I embrace them and find them ennobling; they enrich the human spirit and condition.

My advice to students of statistics who wish to enter the pharmaceutical industry is multifold. First, there is no substitute for mastery of content. Be the real deal. Others will soon realize and appreciate your passion and expertise. It is the way we are wired. Such mastery requires the virtues of working industriously and consistently that open gates to technical creativity, implementation, and opportunities. Repetition is the mother of skills and all learning: practice, practice, practice—here that old-fashioned work ethic, tried and true, kicks in Mastery for statisticians in a given disease area requires a good understanding of it, which makes the statistics more pertinent and the disease area more relevant as the two disciplines feed on each other.

Second, in addition to developing a strong foundation in general and common areas of statistics, students should specialize in at least one area based on their passion for the subject while taking into account the demand and supply of talent in that subject. Seek out specialized areas where there is much demand yet low supply of talent (or at least where demand exceeds supply), especially on the quantitative side, and fill that void with gusto. And then bring out the best talent in others by seeking them out as partners, be they a fellow statistician or clinician, programmer, data manager, or some other professional. Do this unconditionally and, perhaps, they may even bring out the best in you. After all, statistics is a collaborative science.

Third, as a personal strategy, students should be life-long learners of not only statistical and data science, but also nonstatistical knowledge and organizational principles. Broadening nonstatistical knowledge involves adroitness in business conduct helpful to the industry statistician such as developing skills in consulting, communication (presentation and writing), influence, career planning, personality training, and team building. These skills fortify a winning culture at work.

The successful 21st-century statistician needs to develop and refine first-rate quantitative skills through dedication, habitual study, and regular practice.

In addition, expansion to fields seemingly unrelated to statistics—such as travel, music, sports—and reading good books on history, literature, art, and other disciplines are encouraged as they stimulate a person to be more interesting and engaging with an open mind to see things from multicolored perspectives. Perhaps the determination and strategy observed or experienced during a sporting event, or an elegantly written passage of a historical event, may inspire an analogous strategy or interpretation that helps resolve or refine a statistical inquiry for a pharmaceutical application. One resource that cultivates a personal strategy of life-long learning is The Great Courses (*www.thegreatcourses.com*).

Fourth, living and practicing a positive attitude about ourselves, others, and life in general has a way to propel higher, more cultivated thought. Live in a state of gratitude and appreciation. The pharmaceutical industry welcomes a can-do, confident attitude full of optimism and farsightedness.

Fifth, I would encourage students to join a professional organization and become actively engaged in it by volunteering, identifying with it, and taking advantage of its rich and expansive opportunities; for example, the American Statistical Association is a gold mine for statistics education and other professional opportunities. Joining the right eclectic organization, like the ASA, provides its members with wide-ranging possibilities around the different facets of statistical and data science, propelled by a diverse stream of geographic representation and scholastic interests. The benefit received from professional growth and development through such organizations is proportional to the time and effort made to them.

Sixth, start networking. A corollary of actively contributing to a professional organization is the networking opportunities provided. Networking provides an opportunity for statisticians to have more impact on a larger scale, accomplish goals sooner or more efficiently, and obtain an intrinsic sense of belonging. While virtual interactions among colleagues are welcomed and worthwhile, face-to-face human interactions are

The role of statisticians in the pharmaceutical industry has become more elevated over the past two decades.

even better in identifying and connecting with people and a common cause. Networking is also a forum for building character and contributing one's voice, as a stage for participants to earn respect and trust by sharing information and bestowing good will.

Seventh, develop leadership qualities and lead by action—walk your talk. Leadership qualities have multiple facets. Some are majoring in major things and letting go of the small stuff; having a respect for diversity and openness to different opinions; being willing to see things as they are, not as what we wish them to be; having the wisdom to discern when to get involved and when not to; and having a healthy appreciation for creativity and innovation.

Finally, elevate yourself through role models and mentors. Doing so can be ennobling and will save time and effort in achieving many objectives. Different role models and mentors may serve different purposes. They can come from multiple sources such as home, college, work, and the ASA. Ideally, while personal interaction with a mentor is expected, personal interaction with a role model is preferred. But the beneficiary does not necessary have to personally know a role model to achieve the intended objective. The sheer embodiment of a role model—through his or her authored works, presentations, and positions—may be sufficient to inspire the beneficiary to succeed as intended. Not only can the right individuals inspire and enhance your craft, programs or organizations of excellence can be uplifting as well.

How has the role of a statistician in pharmaceutics evolved since you started at Pfizer in 1996? What do you see as the future for statisticians in pharmaceutics?

Beginning with the U.S. Kefauver Harris Amendment in 1962, FDA hired statisticians to help with the review and approval of new drugs. Consequently, statisticians were hired in the pharmaceutical industry to provide what was needed for regulatory approval. Until around 1990, their role was limited. Statistical input was generally restricted to what was deemed necessary, with little or no involvement elsewhere. In the 1970s, however, the FDA's Robert T. O'Neill made huge contributions to promote clinical, as well as nonclinical, development and statistical rigor within FDA. This trend then permeated the industry and the situation started to change.

Since the early 1990s, the role of statisticians in the pharmaceutical industry—especially those employed by larger companies—has evolved and become more elevated with the advent of the statistical analysis plan and Statistical Principles for Clinical Trials (International Conference on Harmonisation E9: ICH-E9). In the mid-1950s, there was little use of statistics, but—as time moved forward—the role of clinical statistics progressed from being merely a formal requirement to one having tactical use. Since around the beginning of the 21st century, the role of statistician has expanded to include the strategic use of statistics and the craft of statistical thinking. Thus, clinical statistics has come a long way in supporting development of medicinal products for regulatory approval and beyond when long-term effects of new drugs are identified and evaluated in a larger population or subpopulation.

The statistician's role has advanced to a full and equal partner with basic, clinical, and regulatory scientists, as ordained in ICH-E9, and I expect this role to continue. I also expect statisticians to continue their focus as consultants in different areas of pharmaceutical research and development, as well as to be gatekeepers in experimental design and analysis.

The application of statistical thinking and quantitative decision-making will continue to permeate throughout the life cycle of pharmaceutical product. The companies that thrive will recognize that statistics is the heart of medical research. Major topics of interest in the pharmaceutical industry are those presented at the ASA Biopharmaceutical Section Regulatory-Industry Statistics Workshop, including (but not limited to) benefit-risk assessment, biosimiliars, and patient-reported outcomes.

As parallel progress is made in related areas such as genomics, epidemiology, and risk management, even more opportunities will exist for the statistician to contribute and collaborate (see, for example, a recent posting in the *Biopharmaceutical Report* from the ASA Biopharmaceutical Section).

In social settings, we understand that, when asked what you do, you say you are a medical researcher. Why do you do this, and how do you still convey your pride about being a statistician?

Statistics is, in my opinion, the center of research and the most sacred of the sciences. For the past 24 years (21 in the pharmaceutical industry, three in academe), I have been fully committed and wholly engaged with clinical applications intended to improve the quality of life and health status of millions and millions of patients worldwide. For example, I have been fortunate to have made instrumental contributions to regulatory approval or subsequent medical triumphs of successful Pfizer medicines such as Viagra for erectile dysfunction, Chantix for smoking cessation, Lyrica for fibromyalgia and neuropathic pain, Geodon for schizophrenia, and Sutent for renal cell cancer.

Over the years, my role has involved primarily the design, measurement, validation, analysis, and interpretation of health measurement scales where I have blended the statistics disciplines of biostatistics and psychometrics. Another passion of mine has been in methods and applications of meta-analysis in medical research. As a result of numerous coauthored publications and conference presentations on medical topics, it is only befitting to say I am a medical researcher. And one with gusto!

Medicine is the science and practice of the diagnosis, treatment, and prevention of disease. The medical profession has many specializations and sub-specializations grouped into certain branches of medicine. Every physician is educated and trained in the basic sciences of medicine. Some groups of physicians, such as primary care physicians, are considered general health care providers, while others specialize in particular fields of internal medicine such as cardiology, urology, and oncology.

By analogy, a statistician is typically trained and educated broadly in the statistical sciences by taking core courses in a college program in statistics or related discipline. Some statisticians remain generalists and provide a diverse mix of services or consult with other statisticians who specialize in a particular area of application or theory. These other statisticians spend more time delving into particular branches of statistics such as biometrics, econometrics, and psychometrics.

Statisticians in the pharmaceutical industry recognize their purpose is to provide new important medicines of the highest quality to patients as quickly, efficiently, and safely as possible. Doing so requires a first-rate operating model with related disciplines in drug development, including data management, statistical programming, regulatory, pharmacology, and clinical. The foundation of this developmental infrastructure emphasizes being both efficient and effective, getting things right the first time, having the right people in the right roles, and taking full ownership of data.

This agile model also strives for greater clarity, accountability, and cost efficiencies; promotes reduced organizational complexity; and embraces innovation and new technologies that leverage deep expertise and broad capabilities. By interweaving a seamless end-to-end approach across all disciplines within a development organization, quality and efficiency of clinical trials become a reality and the patients who benefit from the medicines are best served. ■

FURTHER READING

Chuang-Stein, C., R. Bain, M. Branson, C. Burton, C. Hoseyni, F. Rockhold, S. Ruberg, and J. Zhang. 2010. Statisticians in the pharmaceutical industry. *Statistics in Biopharmaceutical Research* 2(2):145–132.

Hilton, C., and T. Lewis. 2003. Statistics in the pharmaceutical industry. *Careers with the Pharmaceutical Industry*, edited by P.D. Stonier. Second edition. Chichester, United Kingdom: John Wiley & Sons Ltd.

Photo by Carissa Bunge, American Geophysical Union

The ASA's Amy Nussbaum introduces Rep. Bill Foster (D-IL) as one of the keynote speakers for the Climate Science Day workshop.

ASA Visits Capitol Hill During Seventh Climate Science Day

Amy Nussbaum, ASA Science Policy Fellow

On March 21, statisticians Peter Bloomfield, Noel Cressie, Dorit Hammerling, and Leonard Smith joined 23 other scientists from 13 scientific societies on Capitol Hill for the 7th annual Climate Science Day (CSD). Sponsored by the ASA and other scientific societies, the event puts scientists in the same room as lawmakers and their staffs for frank discussions about climate science research. ASA CSD participants visited Colorado, Florida, Georgia, Kentucky, North Carolina, and Ohio offices, as well as various committee and EPA staff members.

As in past years, messages were targeted to possible effects of climate change in specific districts—for instance, drought in the southeast or increased instances of other extreme events. By using such examples, CSD participants hoped to emphasize that climate science affects many people in many ways all over the country. In addition, policy conversations were avoided, giving the science a chance to shine.

CSD participants note the tone of the meetings has been changing over the years. Many of the meetings were positive, and more staffers seem to acknowledge the human role in climate change.

Photo by Josh Shiode of AAAS

Dorit Hammerling, left, of the University Corporation for Atmospheric Research in Boulder, Colorado, stands outside Rep. Mike Coffman's (R-CO) office with Sarah Truebe. Hammerling said she was impressed by the knowledge and interest of the staffers she met.

Photo by Alison Mize, American Meteorological Society

Noel Cressie of the University of Wollongong in Australia stands outside Sen. Rob Portman's (R-OH) office. Cressie wants to be a resource for lawmakers on climate change and environmental issues.

According to Leonard Smith of the London School of Economics and Pembroke College, Oxford, and the only participant to have attended all seven Climate Science Days, the reception felt much different, especially compared to seven years ago. "The desire for open, honest, transparent information on climate is like nothing I have ever seen on Capitol Hill before," he says. "The Republican Climate Resolution (H. Res. 195), the bipartisan Climate Solutions Caucus, and the healthy disagreement between republican offices on climate issues each evidence a willingness for more open discussion," Smith continued. "For CSD participants and the greater scientific community, these developments open new doors for science to inform. As a Gator, I'm also proud of the lead that Florida republicans are taking on the CSC and H.Res. 195."

Participant Dorit Hammerling of the University Corporation for Atmospheric Research in Boulder, Colorado, says, "I was impressed by the interest and knowledge of the staffers, as well as the generally congenial atmosphere of the meetings." Hammerling and her team visited the office of Rep. Coffman (R-CO), whose staffers seemed particularly curious and open-minded. In the week following Climate Science Day, Rep. Coffman joined the bipartisan Climate Solutions Caucus with Rep. Annie Kuster (D-NH), indicating a true interest in the quality of the environment and solutions to current problems.

Noel Cressie, formerly of The Ohio State University and now at the University of Wollongong in Australia, says, "My pitch was to be a resource for them in matters of the environment

Photo by Amy Nussbaum/ASA

Peter Bloomfield, left, representing the American Chemical Society, and Daniel Markewitz, center left, of the Soil Science Society of America, discuss climate science with two aides, right, from Sen. David Perdue's (R-GA) office.

and climate-change impacts, which I think is how we can make a real difference."

Content-wise, the meetings varied widely. Peter Bloomfield of North Carolina State University was paired with a state climatologist and noted that some of the people really responded to the climatology side and weather effects in the short run, while others responded to the global aspect of climate science. One staff member asked about the provenance and reliability of climate change data, leading to a fruitful discussion. Still others recognized the impact of climate events on their home districts and saw that scientists can be counted among their allies when it comes to finding solutions to new problems.

A workshop held on the previous afternoon featured Rep. Bill Foster (IL), the only PhD physicist in Congress, and former Rep. Bob Inglis (SC), now an outspoken champion for climate science. These perspectives were especially helpful for participants. Smith says, "I was particularly struck by Congressman Bob Inglis' plea that scientists, as individuals, 'do not become an advocate,' lest we undermine our credibility. This resonates with my experience and with my personal aims regarding the 'science to inform'/ 'science to motivate' divide."

Photo by Steve Pierson/ASA

Leonard Smith of the London School of Economics and Pembroke College, Oxford, talks about climate science with a staffer.

Other events included a congressional staff briefing and Q&A session and presentations with advice for a successful Hill meeting. Participants were able to meet with their assigned teams, strategize, and develop their message and ask based on the offices they would be visiting. ■

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PASTIMES OF STATISTICIANS

What Does Fred Faltin Do When He Is Not Being a Statistician?

Photo by Fred Faltin

An abandoned miner's cabin in Animas Forks, Colorado

Faltin

Who are you, and what is your statistics position?

I am Fred(erick W.) Faltin. I'm managing director and—with my wife, Donna—co-founder of The Faltin Group. We've provided consulting and training services in statistics, Six Sigma, economics, and operations research to companies throughout the Americas, Europe, and Asia. Previously, I started and managed the Strategic Enterprise Technologies Laboratory at GE Research. I'm a fellow of the ASA and, with my friends and colleagues Ron Kenett and Fabrizio Ruggeri, working on the book *Analytic Methods in Systems and Software Testing*. (Our previous projects were *The Encyclopedia of Statistics in Quality and Reliability* and *Statistical Methods in Healthcare*.)

Tell us about what you like to do for fun when you are not being a statistician.

My favorite pastime is researching, finding, and photographing ghost towns in America's western states. Many of these towns have a rich history and played a role the growth of the nation and expansion of the U.S. economy from the mid-1800s through the mid-1900s.

While some western cities and towns—the ones we all know of—grew and became permanent centers of commerce, industry, and culture, others that seemed sure to succeed withered and passed into history. Some of these still have a few longtime or newly arrived residents, but many are completely abandoned. Creating a visual chronicle of what remains and exploring the civic structure and physical architecture of these towns has long been of fascination to me.

Photo by Fred Faltin

A crumbling one-room schoolhouse in Cherry Creek, Nevada

What drew you to this hobby, and what keeps you interested?

When I was an undergraduate at MIT, my adviser, Gian-Carlo Rota, was the mathematics fellow of the Los Alamos National Laboratory. That led to my working at the lab as a research assistant for a number of summers. Since I knew no one in the area at first, I had plenty of time to explore the mountains and deserts of New Mexico. I soon came across a number of interesting old (mostly mining) towns that were abandoned, or nearly so. Seeing and photographing some naturally led me to want to find more, and the rest is history (pun intended).

Today, I enjoy the fact that ghost-towning allows me to combine my interest in history with my love of the outdoors. Many of the towns I've located are in extremely remote locations in the vast reaches of the West, so I often find myself camped out under the stars beside my 4WD in what most people would consider the middle of nowhere. Always fond of hiking and backpacking, I love having an excuse to scramble up hill and down dale in search of what might be over the next rise. And there's a sense of freedom and solitude that is hard to equal. ■

Photo by Fred Faltin

An empty home in Animas Forks, Colorado

STAT*tr@K*

Advocating for Ethical Guidelines Strengthens Statisticians, Data Analysts

Rochelle E. Tractenberg, PStat®

"I regard the lost opportunities—specifically bad science—as unethical."
— *John Bailar (*https://goo.gl/RN8gTC*)*

"Bad statistics makes bad research, and bad medical research is not ethical."
— *Doug Altman (https://goo.gl/Uls4Xz)*

Rochelle Tractenberg is an associate professor in the department of neurology at Georgetown University. She earned her PhD from the University of Maryland, College Park, in measurement, statistics, and evaluation. Contact her at *rochelle.tractenberg@gmail.com*.

I did not become a statistician to advocate for "good science," but as I prepare to celebrate my 20th year as both a scientist and a statistician, I have come to the same conclusion as John Bailar and Doug Altman: Bad research and bad science are unethical.

Throughout my career, I have consistently advocated for good science and transparency in my roles as grant reviewer, journal reviewer and editor, and instructor and mentor (and collaborator). I joined the ASA's Committee on Professional Ethics (COPE) in 2013 and became the committee chair this year. I was also engaged in the revision of the ASA Ethical Guidelines for Statistical Practice (*https://goo.gl/lZeB9G*), which the board of directors endorsed in May of 2016, and I plan to spend my time as COPE chair helping our profession—and all those who engage in data analysis—understand how and why these guidelines can support and strengthen the role and visibility of the statistician, analyst, and data scientist.

This advocacy probably will not be a top, or even a top 20, priority for the beginning statistician. However, in the current "post-truth" era, I think integrity and professionalism have an increasing importance. Beyond avoiding misconduct, which is a natural top priority for all statisticians at all career stages, encouraging and advocating for good science through appropriate and transparent statistical analysis can be pursued. If this seems weighty, I would argue that the heft of this obligation makes the data analyst stronger and adds a substantive dimension to the statistician as a collaborator and partner in the scientific enterprise.

The American Association for the Advancement of Science's (AAAS) 2017 annual meeting was held in Boston February 16–20 with the theme, "Serving Society Through Science Policy." I organized a session to highlight the crucial ways ethical professional practice is essential to promoting ethical policy and decision making.

Specifically, the 2017 AAAS theme announcement stated, "Policies both within and outside science should be informed by the best available evidence." As a biostatistician and sometimes patient, I know evidence-based medicine is contingent on good science; medicine, like science and policy, should be based on the best available evidence. This is as true today as it was 38 years ago when Altman noted, "Medical research is one of the main foundations of medical knowledge, influencing diagnosis and treatment, so research which is badly designed or misleading analyses may lead to wrong diagnostic or therapeutic decisions and so put patient health or even lives at risk."

The session I organized featured three disciplinary perspectives. We first heard from engineering, which has professional ethical guidelines that are required content in every accredited degree program. Richard Maudslay, an elected fellow of the Royal Academy of Engineering and chair of the Ethics Working Group, discussed the working group and Royal Academy's efforts to create, maintain, and disseminate this training.

I was the next speaker, and I presented the ASA Ethical Guidelines for Statistical Practice. My presentation outlined the origins and contents of our ethical guidelines, but contrasted with the engineering perspective in terms of the nonrequirement and nonaccreditation of statistics courses or programs throughout the United States—and, subsequently, the lack of requirement that our guidelines be integrated into quantitative training at any level.

Finally, George DeMartino, an economics professor at Denver University, brought this perspective from economics: no guidance and no guidelines. One dramatic difference between economics and engineering and statistics is a longstanding and active resistance—from across practitioners at all levels and in all industries where economics are used—to the notion that such guidelines

How You Can Get Involved

An initiative Rochelle Tractenberg is planning for her tenure as the ASA's Committee on Professional Ethics (COPE) chair is to collect, standardize, and make available case studies for statisticians and data analysts to use as they teach or familiarize themselves with the ASA's ethical guidelines. She invites all statisticians and data scientists to consider contributing a case for this effort. The standardization of cases will have the following two key features:

1. It will align each case with at least one of the case types described by the National Center for Case Study Teaching in Science (NCCSTS, *https://goo.gl/MGgEfy*), with particular attention given to incorporating at least one—preferably two—of the ASA's ethical guideline principles or sub-elements.
2. It will make every case fully anonymous so no individual, group, or agency/institution can be identified (by name, practice, or other indirect method). COPE seeks to create accessible resources that instructors and mentors at all levels can use to introduce, and provide practice with, the ASA's ethical guidelines. (Contributors may consider submitting their cases directly to NCCSTS, although their primary responsibility is not to use cases to teach ethics per se.)

Submissions should be sent to *rochelle.tractenberg@gmail.com* with "ASA GUIDELINES CASE STUDY: LASTNAME.dd.month.yy" in the subject line. Depending on the rate of submissions, COPE may create a working group to explore how well the 2016 guidelines revision handles the cases submitted. Since COPE will be revisiting the 2016 revisions in 2021, any unmet challenges that arise from these cases will be incorporated into the 2021 revision.

Tractenberg points out that economics, with neither guidelines nor professional guidance, is also lacking this straightforward mechanism for the evolution of what it means to be an economist. She does not anticipate statistics and data science will reach the level of accreditation and integration of ethical guidelines engineering has achieved, but she hopes to more fully engage practicing data analysts in the familiarization with and cultural embedding of the ASA Ethical Guidelines for Statistical Practice.

are needed or could be useful for economists. Another important distinction between economics and engineering and statistics is whether ethical guidelines are a required part of the degree-granting preparation. Engineers and statisticians can actually say, "I'm sorry, but what you're asking or suggesting is not part of what it means to be a professional." That is, with no ethical code or professional guidelines of any sort, economists can be asked—ordered—to construct an analysis conforming to a decision that has already been made. This may happen to an engineer or a data analyst, but individuals in these professions at least have the opportunity to push back.

After the presentations, we had a lively discussion with the AAAS 2017 audience—moderated by Andrew Gelman—about the importance of professional guidelines for the profession, for the reliability of results arising from the hard and careful work professionals across these disciplines do, and for the protection and empowerment of the practitioners.

I organized this session to bring these perspectives into alignment, but participating also made me appreciate the hard work the ASA COPE did to get the guidelines codified in 1995. I saw how important it is to share these guidelines as widely as possible and engage those who analyze data in doing good science. I have committed my time as COPE chair to disseminating the ASA's ethical guidelines and integrating them into the culture of practicing statistics and data science.

I appreciate the sense in which this added dimension to the study and practice of data analysis may seem "heavy," but I also believe the ASA's ethical guidelines promote a sense of professionalism not widely available across careers or career tracks. For example, before I became a biostatistician, I was a cognitive scientist. Ethics training was limited to, and entirely focused on, treating human subjects in psychology and cognitive experiments ethically. My obligations to the profession, science, and other cognitive scientists were never mentioned. Each of these obligations is specifically discussed in the ASA's ethical guidelines.

As a biostatistician working mainly in neurology and neuropsychological applications, I have also read through the ethical guidelines for other disciplines. Those of the Society for Neuroscience (*https://goo.gl/Cux8Rp*), for example, almost exclusively relate to publishing. Since publishing is a tiny part of what professional neuroscientists do, these guidelines cannot promote engagement in our professional development (of ourselves, our mentees/students, or our collaborators) as actively as the ASA's ethical guidelines do for statisticians and data scientists. ■

MORE ONLINE
Find the ASA's ethical guidelines here: *https://goo.gl/bnPyxp.*

JSM Is Baltimore Bound!

Get a Peek at This Year's Featured Speakers and Other Highlights

JSM BY THE NUMBERS

More than 6,000 attendees from 52 countries

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More than 1,000 student attendees

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90+ exhibitors

With more than 3,000 individual presentations arranged into approximately 204 invited sessions, 300 contributed sessions, and 500 poster and speed poster presentations, the 2017 Joint Statistical Meetings will be one of the largest statistical events in the world. It will also be one of the broadest, with topics ranging from statistical applications in numerous industries to new developments in statistical methodologies and theory. Additionally, there will be presentations about some of the newer and expanding boundaries of statistics, such as analytics and data science.

This year, the exhibit hall is the place to be. The Opening Mixer will take place there in addition to Spotlight Baltimore, which will feature events throughout the week. Moreover, if you are looking for a way to help the local community, you'll want to visit IMPACT Baltimore. Finally, there will be an art show featuring data artists just inside the hall.

Here are a few more highlights to let you know what to expect. We hope to see you there.

FEATURED SPEAKERS

Monday, July 31

4:00 p.m.

ASA President's Invited Address

Jo Craven McGinty

The Wall Street Journal

Abstract unavailable.

Tuesday, August 1

8:00 p.m.

ASA President's Address and Founders & Fellows Recognition

Barry D. Nussbaum

"Statistics: Essential Now More Than Ever (Or, Why Uber Should Be in the Driver's Seat for Cars, Not for Data Analysis)"

Now is the time for statisticians to come to the rescue of rational analysis of today's challenges. Our profession is essential now, perhaps more than ever before. The world is besieged with a deluge of Big Data and analysts ready to process it. Rather than being captive to this burgeoning field, statisticians are poised to provide the critical elements for affecting social problems. This talk focuses on the new initiatives taken to ensure the proper and vital use of statistics now and into the future. Let the Ubers of the world be in the driver's seat to speed you to the airport, while the statisticians correctly assess the data. Examples will be given showing the crucial importance and vital strength of statisticians who are at the table when decisions are made. The art of effective collaboration with clear and succinct explanations is more important than ever. Come hear how you can improve your contributions to society and our collective standing in the world.

Tuesday, August 1

4:00 p.m.

ASA Deming Lecture

Fritz Scheuren

NORC at the University of Chicago

"A Rake's Progress Revisited"

Deming's statistical consulting advice to us is rich and varied. I knew Deming a little and long loved him from afar. That affection for this great man should be evident in this talk. To give focus to my remarks, I will cover just one of his quality ideas in depth: the algorithm commonly called "raking."

Raking, or raking ratio estimation, was advanced by Deming and Stephan for use in the 1940 U.S. Decennial Census. The algorithm employs at its heart a process whereby the weights of a data set are iteratively ratioed-adjusted within categories, until they simultaneously meet, within tolerance, a set of pre-specified population totals.

Some confusion surrounding raking's introduction slowed its development. At its base, the approach was intuitive. Its theoretical development came long after, and some of the justifications for its use were misplaced, including by Deming.

For a long time, the lack of computing power limited raking to modest applications and, given the work needed, the benefit/cost ratio often seemed insufficient relative to the time and money that had to be expended. These limitations no longer hold.

The problem of variance calculation accounting for raking posed additional challenges. These were solvable asymptotically in some decennial and sample survey settings, but usually not in a closed form. Even now, replication techniques are most commonly the only practical solution available for general sample survey settings.

This talk will motivate these assertions with examples taken from my practice and that of other statisticians. Extensions by me to multivariate raking will also be covered and speculations on unsolved or incompletely posed problems will be offered. Throughout, I will intersperse examples from my decades of practice.

Wednesday, August 2

4:00 p.m.

COPSS Awards and Fisher Lecture

Robert E. Kass

Carnegie Mellon University

"The Importance of Statistics: Lessons from the Brain Sciences"

The brain's complexity is daunting, but much has been learned about its structure and function, and it continues to fascinate. On the one hand, we are all aware that our brains define us; on the other hand, it is appealing to regard the brain as an information processor, which opens avenues of computational investigation.

While statistical models have played major roles in conceptualizing brain function for more than 50 years, statistical thinking in the analysis of neural data has developed much more slowly. This seems ironic, especially because computational neuroscientists can, and often do, apply sophisticated data analytic methods to attack novel problems. The difficulty is that, in many situations, trained statisticians proceed differently than those without formal training in statistics. What makes the statistical approach different and important? I will give you my answer to this question and go on to discuss a major statistical challenge, one that could absorb dozens of research-level statisticians in the years to come.

Monday, July 31

8:00 p.m.

IMS Presidential Address and Awards Ceremony

Jon A. Wellner

University of Washington

"The IMS at 82: Past, Present, and Future"

In 2017, the IMS reaches the age of 82. Will it make it to 100? In this talk, I will argue that the IMS has succeeded remarkably well in fulfilling its fundamental goal: "To foster the development and dissemination of the theory of statistics and probability." The IMS publishes the top journals in both statistics and probability and organizes world-class meetings on a regular basis in conjunction with its sister/brother organizations, the Bernoulli Society and the ASA.

As noted by Jim Pitman in his 2008 *IMS Bulletin* article, "... [A]mong many organizations with this goal, the IMS stands out as the most responsive to creative suggestions about how to achieve it." In this talk, I will review the history of the IMS, summarize the current state of affairs of the IMS as an organization and its goals, and briefly discuss future directions. With continued creative responsiveness to recent trends, it seems likely the IMS will easily reach its 100th anniversary.

Key Dates for ATTENDEES

May 1 *11:00 a.m.*
Registration and housing open

June 1
Early registration deadline

June 2 *12:01 a.m.* – **June 29** *11:59 p.m.*
Regular registration (increased fees apply)

June 29 *12:01 a.m.* – **July 20** *11:59 p.m.*
Late Registration (increased fees apply)

June 30
Housing deadline

July 29 – August 3
2017 Joint Statistical Meetings

Monday, July 31

8:30 a.m.

IMS Medallion Lecture I

Edoardo M. Airoldi

Harvard University

"Design and Analysis of Randomized Experiments on Networks"

Classical approaches to causal inference largely rely on the assumption of "no interference," according to which the outcome of an individual does not depend on the treatment assigned to others. In many applications, however, such as evaluating the effectiveness of health care interventions that leverage social structure or assessing the impact of product innovations on social media platforms, assuming lack of interference is untenable. In fact, the effect of interference itself is often an inferential target of interest, rather than a nuisance. In this lecture, we will formalize technical issues that arise in estimating causal effects when interference

can be attributed to a network among the units of analysis, within the potential outcomes framework. We will then introduce and discuss several strategies for experimental design in this context.

Monday, July 31

10:30 a.m.

Blackwell Lecture

Martin Wainwright

University of California, Berkeley

"Information-Theoretic Methods in Statistics: From Privacy to Optimization"

Blackwell made seminal contributions to information theory and statistics, including early work on characterizing the capacities of various channels. The notion of channel capacity has a natural analogue for statistical problems, where it underlies the characterization of minimax rates of estimation. Inspired by this seminal work, this talk is devoted to the use of information-theoretic methods for tackling statistical questions, and I provide two vignettes. First, in the realm of privacy-aware statistics, how to characterize the tradeoffs between preserving privacy and retaining statistical utility? Second, in the realm of statistical optimization, how can we characterize the fundamental limits of dimensionality reduction methods?

This lecture will draw on joint work with John Duchi, Michael Jordan, and Mert Pilanci.

Monday, July 31

2:00 p.m.

IMS Medallion Lecture II

Emery N. Brown

Massachusetts Institute of Technology

"State-Space Modeling of Dynamics Processes in Neuroscience"

Dynamic processes are the rule, rather than the exception, in all areas of neuroscience. For this reason, many of the data analysis challenges in neuroscience lend themselves readily to formulation and study using the state-space paradigm. In this lecture, I will discuss the state-space paradigm using both point process and continuous valued observation models in the study of three problems in basic and clinical neuroscience research: characterizing how the rodent hippocampus maintains a dynamic representation of the animal's position in its environment; real-time tracking of brain states of patients receiving general anesthesia; and real-time assessment and control of medical coma. This research has led to the development of state-space methods for point process observation models and state-space multitaper methods for time-frequency analysis of nonstationary time series.

Tuesday, August 1

8:30 a.m.

IMS Medallion Lecture III

Subhashis Ghoshal

North Carolina State University

"Coverage of Nonparametric Credible Sets"

The celebrated Bernstein-Von Mises theorem implies that for regular parametric problems, Bayesian credible sets are also approximately frequentist confidence sets. Thus, the uncertainty quantification by the two approaches essentially agree, even though they have very different interpretations. A frequentist can then construct confidence sets by Bayesian means, which are often easily obtained from posterior sampling. However, the incredible agreement can fall apart in nonparametric problems whenever the bias becomes prominent. Recently, positive results have appeared in the literature overcoming the problem by undersmoothing or inflation of credible sets. We shall discuss results on Bayes-frequentist agreement of uncertainty quantification in white noise models, nonparametric regression, and high-dimensional linear models. We shall also discuss related results on nonlinear functionals.

Tuesday, August 1

2:00 p.m.

IMS Medallion Lecture IV

Mark Girolami

Imperial College London

"Probabilistic Numerical Computation: A Role for Statisticians in Numerical Analysis?"

A research frontier has emerged in scientific computation founded on the principle that numerical error in numerical methods that, for example, solve differential equations entails uncertainty that ought to be subjected to statistical analysis. This viewpoint raises exciting challenges for contemporary statistical and numerical analysis, including the design of statistical methods that enable the coherent propagation of probability measures through a computational and inferential pipeline. A probabilistic numerical method is equipped with a full distribution over its output, providing a calibrated assessment of uncertainty shown to be statistically valid at finite computational levels, as well as in asymptotic regimes. The area of probabilistic numerical computation defines a nexus of ideas, philosophies, theories, and methodologies bringing together statistical science, applied mathematics, engineering, and computing science. This talk seeks to make a case for the importance of this viewpoint. I will examine the case for probabilistic numerical methods in mathematical modeling and statistical computation while presenting case studies.

Wednesday, August 2

8:30 a.m.

IMS Medallion Lecture V

Judith N. Rousseau

Université Paris Dauphine

"On the Semiparametric Bernstein-Von Mises Theorem in Regular and Nonregular Models"

In regular models, the renown Bernstein-Von Mises theorem states that the posterior distribution of a quantity of interest, say θ, is asymptotically Gaussian with mean $\hat \theta$ and variance V/n when the data are assumed to be distributed from a model P_{0}. It also states that, under P_0, $\sqrt{n}(\hat \theta- \theta_0) $ is asymptotically Gaussian with mean zero and variance V. This duality between the asymptotic behavior of the posterior distribution of θ and the frequentist distribution of $\hat \theta$ has important implications in terms of strong adequacy between the Bayesian and frequentist approaches. In non-regular models, a similar adequacy can happen; however, the asymptotic distribution may not be Gaussian nor the concentration rate by $1/\sqrt{n}$. These results are well known in parametric models.

In this talk, I will present developments that have been obtained in both regular and non-regular semiparametric models (i.e., when the parameter of interest θ is finite dimensional, but the model also includes an infinite or high-dimensional nuisance parameter).

Wald Lectures

Emmanuel J. Candes

Stanford University

"What's Happening in Selective Inference?"

Tuesday, August 1

4:00 p.m.

Wald Lecture I

Wednesday, August 2

10:30 a.m.

Wald Lecture II

Thursday, August 3

8:30 a.m.

Wald Lecture III

Science has long operated as follows: A scientific theory can only be empirically tested, and only after it has been advanced. Predictions are deduced from the theory and compared with the results of experiments so they can be falsified or corroborated. This principle, formulated by Popper and operationalized by Fisher, has guided the development of scientific research and statistics for nearly a century. We have, however, entered a new world where large data sets are available prior to the formulation of scientific theories. Researchers mine these data relentlessly in search of new discoveries, and it has been observed that we have run into the problem of irreproducibility. Consider the April 23, 2013, Nature editorial: "[...] Nature has published a string of articles that highlight failures in the reliability and reproducibility of published research." The field of statistics needs to reinvent itself to adapt to the new reality in which scientific hypotheses/theories are generated by data snooping. I will make the case that statistical science is taking on this great challenge and discuss exciting achievements such as FDR theory, knockoffs, and post-selection inference. ■

JSM 2017 SPECIAL OPPORTUNITIES

What do you think of when you think of Baltimore? Join us for featured events throughout the week that give you a little taste of the city. Check out the schedule and stop by Spotlight to see more!

SUNDAY, JULY 30

1:00 p.m.

Spotlight Baltimore Kick-Off

Swing by and kick-off JSM with a taste of some Charm City delights. Enjoy sample sizes of crab cakes, pit beef, and more while they last!

3:30 p.m.

Baltimore's Berger Cookies

Made from vanilla shortbread covered in a fudge ganache, Berger cookies were originally brought from Germany to Baltimore by George and Henry Berger in 1835. Enjoy samples (while supplies last).

MONDAY, JULY 31

9:00 a.m.

Baltimore Insider Tips

Think you know Charm City? Whether you have been to Baltimore many times and want to discover something new or it's your first time in the city, Visit Baltimore will be around to help.

10:00 a.m.

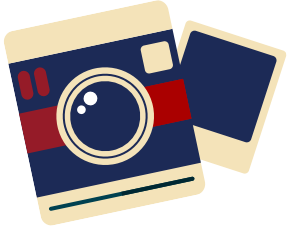
JSM Coffee House

Refresh with a cup of coffee or tea.

11:00 a.m. - 3:00 p.m.

JSM Photo Booth

Create memories with your friends using fun props.



1:30 p.m.

Popcorn Break, sponsored by XLSTAT

Swing by and grab a little snack. Feel like spicing things up? Try adding Old Bay or Truffle Salt!

3:30 p.m.

Baltimore Microbrew Tasting

Stop by to taste a variety of Baltimore Heavy Seas microbrews (while supplies last).

TUESDAY, AUGUST 1

10:00 a.m.

Get Your JSM Energy Fix

Come check out this healthy alternative to a coffee break. Power up with smoothies, energy bars, and make-your-own trail mix.

1:30 p.m.

Popcorn Break, sponsored by XLSTAT

Swing by and grab a little snack. Feel like spicing things up? Try adding Old Bay or Truffle Salt!

3:30 p.m.

Experience Maryland Wines

Don't miss the chance to taste local wines. Samples from Sweet Cakes, Boordy Vineyards, and Linganore Winery (while supplies last).

WEDNESDAY, AUGUST 2

10:00 a.m.

JSM Coffee House

Refresh with a cup of coffee or tea.

IMPACT BALTIMORE

Interested in giving back to the community while in Baltimore? There are two ways to do so:

- Drop off donations (school supplies such as pencils, rulers, crayons, and paper) in the donation boxes at the ASA Booth in the EXPO. Supplies will be passed out to schools in the Baltimore area.
- Connect with other JSM attendees while making blankets (no sewing involved) to be donated to Project Linus. Just drop by Spotlight Monday through Wednesday between 11:30 a.m. and 1:00 p.m. to participate.

DON'T FORGET
JSM Registration opened May 1! Visit *ww2.amstat.org/jsm* to sign up!

MWM
Meeting Within a Meeting

a statistics workshop for K-12 teachers

www.amstat.org/education/mwm

Based on the Common Core State Standards for Mathematics (***corestandards.org***) and *Guidelines for Assessment and Instruction of Statistics Education (GAISE): A Pre-K–12 Curriculum Framework* (***www.amstat.org/education/gaise***)

Dates:	Tuesday, August 1, and Wednesday, August 2, 2017, 8:00 a.m. to 4:00 p.m.
Place:	The University of Maryland, Baltimore (meeting room TBD)
Audience:	Middle- and high-school mathematics and science teachers. Multiple mathematics/science teachers from the same school are especially encouraged to attend.
Objectives:	Enhance understanding and teaching of statistics within the mathematics/science curriculum through conceptual understanding, active learning, real-world data applications, and appropriate technology
Content:	Teachers will explore problems that require them to formulate questions; collect, organize, analyze, and draw conclusions from data; and apply basic concepts of probability. The MWM program will include examining what students can be expected to do at the most basic level of understanding and what can be expected of them as their skills develop and their experience broadens. Content is consistent with Common Core standards, *GAISE* recommendations, and *NCTM Principles and Standards for School Mathematics*.
Presenters:	*GAISE Report* authors and prominent statistics educators
Format:	Middle-school and high-school statistics sessions Activity-based sessions, including lesson plan development
Provided:	Refreshments Handouts Certificate of participation from the ASA certifying professional development hours Optional graduate credit available
Cost:	The course fee for the two days is $50. **Please note:** Course attendees do not need to register for the Joint Statistical Meetings* to participate in this workshop.
Follow up:	Follow-up activities and webinars (***www.amstat.org/asa/education/K-12-Statistics-Education-Webinars.aspx***) Network with statisticians and teachers to organize learning communities
Registration:	More information and online registration is available at ***www.amstat.org/education/mwm***. Space is limited. If interested in attending, please register as soon as possible.
Contact:	Rebecca Nichols, ***rebecca@amstat.org***; (703) 684-1221, Ext. 1877

*The Joint Statistical Meetings are the largest annual gathering of statisticians, where thousands from around the world meet to share advances in statistical knowledge. JSM activities include statistics education sessions, poster sessions, and an exhibit hall.

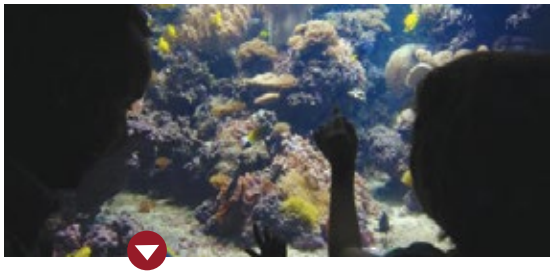
Sponsored by

ASA

What's in Baltimore Besides JSM? More Than You Think!

Baltimore has a lot to offer, from the Inner Harbor to Oriole Park at Camden Yards to Fells Point.

The Baltimore Convention Center is located at 1 W. Pratt St., just two blocks from Baltimore's famous Inner Harbor. The location makes it convenient to squeeze a little "tourist time" into your busy JSM schedule. Baltimore's Inner Harbor is home to a number of interesting attractions, including the following:



National Aquarium

501 E. Pratt St.
https://aqua.org
Open daily, see website for hours and ticket prices
Strongly recommend purchasing tickets in advance

The National Aquarium in Baltimore houses sharks, dolphins, rays, and tropical fish among the more than 17,000 creatures in naturalistic exhibits, including a walk-through rain forest, a 4-D immersion theater, the Living Seashore touch pool, and an Australian exhibit featuring a 35-foot waterfall.

Maryland Science Center

601 Light St.
www.mdsci.org
Open daily, check website for hours and prices
Strongly recommend purchasing tickets in advance

Explore numerous hands-on activities at the Maryland Science Center. Featuring an IMAX theater and planetarium, it's sure to please all visitors. Don't miss the new exhibit, Science & Main, that takes you past Baltimore landmarks as you learn how science interacts with your everyday life.

Historic Ships

Pier 1, 301 E. Pratt St.
www.historicships.org
Sunday-Thursday, 10:00 a.m. – 5:00 p.m.;
Friday, 10:00 a.m. – 6:00 p.m.; Saturday,
10:00 a.m. – 7:00 p.m.

See website for ticket prices

Be sure to witness the historic ships in Baltimore by touring the *USS Constellation*, the *USS Torsk*, the *USCGC Taney*, and the *Lightship Chesapeake*. Learn about the role these vessels played during various battles in American history. Also tour Seven Foot Knoll Lighthouse (above).

CHEER ON THE BIRDS!

Baltimoreans take their sports seriously. Today, sports fans flock to Oriole Park at Camden Yards, the first of the new breed of retro ballparks, to cheer on the O's—or the Birds as they are known locally. Take this opportunity to watch the O's host the Kansas City Royals July 31–August 2 or take on the Tigers August 3–6. Can't make a game? Tours are also available, game schedules permitting.

Ticket information: *www.mlb.com/orioles*

Tour Information: *http://m.mlb.com/orioles/tickets/tours*

But wait, there is more! Just a bit farther, but easily accessible with public transportation, are the following:

Baltimore Museum of Art

10 Art Museum Drive

https://artbma.org

Wednesday – Sunday, 10:00 a.m. – 5:00 p.m.

Entry to the BMA is free for everyone

Home to an internationally renowned collection of 19th-century, modern, and contemporary art, the BMA includes one of the most important African collections in the country. Founded in 1914 with a single painting, the BMA today has 95,000 works of art—including the largest holding of works by Henri Matisse in the world. The museum has a long tradition of collecting the art of the day, beginning with the Cone Sisters, whose acquisitions from living artists led to the museum's commitment to contemporary art.

B&O Railroad Museum

901 W. Pratt St.

www.borail.org

Open Monday – Saturday, 10:00 a.m. – 4:00 p.m.; Sunday, 11:00 a.m. – 4:00 p.m.

Entrance fee: Adults $18; Seniors (60+) $16; Children (2–12) $12

This fascinating and fun place for kids, families, and lovers of history features the most important railroad collection in America, as well as seasonal train rides and free parking.

Walters Art Museum

600 N. Charles St.

https://thewalters.org

Wednesday – Sunday, 10:00 a.m. – 5:00 p.m.; Thursday, 10:00 a.m. – 9:00 p.m.

The collection at the Walters Art Museum presents an overview of world art from pre-dynastic Egypt to 20th-century Europe and counts among its many treasures Greek sculpture, Roman sarcophagi, medieval ivories, Old Master paintings, Art Nouveau jewelry, and 19th-century European and American masterpieces. Try out the new mobile guide to discover the stories behind the collection.

Fort McHenry National Monument and Historic Shrine

2400 E. Fort Ave.

www.nps.gov/fomc/index.htm

Open daily, 9:00 a.m. – 5:00 p.m.

Entrance fee: $10 for adults; children 15 years and younger are free

At Fort McHenry, you can learn about the Battle of Baltimore and the birth of the "Star Spangled Banner" and experience events like living history weekends, where the Fort McHenry Guard performs demonstrations—all just a water taxi ride away from the Inner Harbor.

GETTING AROUND

Charm City Circulator

Be sure to take advantage of Baltimore's Charm City Circulator, a fleet of free bus shuttles that travel four routes throughout the city. Operating every day, check out the Circulator website at *www.charmcitycirculator.com* to download the Circulator app to use while moving around the city.

Monday – Thursday: 7:00 a.m. – 8:00 p.m.

Friday: 7:00 a.m. – midnight

Saturday: 9:00 a.m. – midnight

Sunday: 9:00 a.m. – 8:00 p.m.

Baltimore Water Taxi

This water transportation system of 17 blue-and-white boats is the oldest of its kind in the country. Offering one price for all-day, unlimited on-off service to more than 30 attractions and neighborhoods—including Fell's Point, Canton Waterfront Park, and Fort McHenry—don't miss this fun way to get around Baltimore. ■

BAPS

BEYOND AP STATISTICS

WEDNESDAY, AUGUST 2, 2017 • 8:00 A.M. - 4:30 P.M. • BALTIMORE, MARYLAND

A WORKSHOP FOR EXPERIENCED TEACHERS

Sponsor: ASA-NCTM Joint Committee on Curriculum in Statistics and Probability

The ASA/NCTM Joint Committee will sponsor a **Beyond AP Statistics (BAPS) workshop** at the annual Joint Statistical Meetings* in Baltimore, Maryland, August 2, 2017. Organized by Roxy Peck, the BAPS workshop is offered for AP Statistics teachers and consists of enrichment material just beyond the basic AP syllabus. The course is divided into four sessions led by noted statisticians. Topics in recent years have included experimental design, topics in survey methodology, multiple regression, logistic regression, what to do when assumptions are not met, and randomization tests.

COST

The course fee for the full day is $50. **Please note:** Course attendees do not need to register for the Joint Statistical Meetings (JSM)* to participate in this workshop, although there is a discounted JSM registration for K-12 teachers available at ***www.amstat.org/meetings/jsm/2017***.

LOCATION

The University of Maryland, Baltimore (workshop meeting room TBD)

PROVIDED

- Refreshments (lunch on your own)
- Handouts
- Pass to attend the exhibit hall at the Joint Statistical Meetings
- Certificate of participation from the American Statistical Association certifying professional development hours
- Optional graduate credit available

REGISTRATION

Online registration is available at ***www.amstat.org/education/baps***. Registrations will be accepted until the course fills, but should arrive no later than July 14, 2017. Space is limited. If interested in attending, please register as soon as possible.

QUESTIONS

Contact Rebecca Nichols at ***rebecca@amstat.org*** or call (703) 684-1221, Ext. 1877.

*The Joint Statistical Meetings are the largest annual gathering of statisticians, where thousands from around the world meet to share advances in statistical knowledge. JSM activities include statistics and statistics education sessions, poster sessions, and an exhibit hall.

ASA

Is This Your First JSM? Here Are Tips to Navigate the Conference

Christopher Bilder, University of Nebraska-Lincoln

The largest congregation of statisticians in the world happens every August during the Joint Statistical Meetings (JSM). More than 6,000 people attend these meetings, which are sponsored by 11 statistical societies, including the American Statistical Association. The meetings offer a variety of activities such as attending research presentations, interviewing for jobs, taking professional development courses and workshops, and browsing the exhibit hall. With so many opportunities, new attendees can be overwhelmed easily by their first JSM experience.

Based on my familiarity with attending meetings over the last 16 years and the experiences of student groups I have led, I'm going to tell you how to get the most out of JSM. If you would like to share your own recommendations, I encourage you to submit a comment at *http://stattrak.amstat.org*.

Christopher Bilder is a professor in the department of statistics at the University of Nebraska-Lincoln. He will be presenting the continuing education course "Analysis of Categorical Data" during JSM. He earned his PhD in statistics from Kansas State University.

Before JSM

Most new attendees who choose to present their research do so in a contributed session via an oral or poster presentation. The deadline to submit an abstract for acceptance into the program was in early February. For those who did this, additional proof of progress (e.g., drafts of a paper) for the presentation must be submitted by mid-May.

A preliminary program listing the presentation schedule is now available at *https://goo.gl/yVaKx4*. Because there may be more than 40 concurrent presentations at any time, it is best to arrive at JSM with an idea of which to attend. This can be done by examining the session titles and performing keyword searches in the online program prior to JSM.

Oral presentations are separated into invited, topic-contributed, and contributed sessions, with each session lasting 1 hour and 50 minutes. Invited and topic-contributed sessions include groups of related presentations that were submitted together and selected by JSM Program Committee members. These presentations each last for 25 or more minutes for invited and 20 minutes for topic-contributed. Contributed paper sessions include groups of 15-minute oral presentations. Unlike invited and topic-contributed sessions, contributed presentations are submitted individually and then grouped by JSM Program Committee members.

Poster presentations are also separated into invited, topic-contributed, and contributed sessions, with the vast majority in contributed sessions. These types of presentations involve speakers being available for questions next to their displayed poster during the entire session. Most posters are of the traditional paper format, but an increasing number now are in an electronic format. This latter format involves a large, high-definition TV that shows the poster all at once or cycles through a small number of slides that would normally be printed on paper. Relatively new to JSM is a hybrid of an oral and poster presentation. The oral poster presentation component begins with a "speed session," in which four-minute presentations are given by each speaker. Later the same day, electronic posters are made available for these same presentations.

Online registration for JSM begins around May 1. For members of a sponsoring statistical society, the cost is $430 during the early registration period. The cost increases to $525 if you register at JSM. Registration for student members is only $105, and this rate is available at any time. Also starting around May 1, you can reserve a hotel room through the JSM website. A number of hotels near the convention center are designated as official conference hotels, and they discount their normal rates. However, even with a discount, you can expect to pay $200 or more per night for a room.

Attending JSM can be expensive. Students have several options to reduce the cost burden. First, ask your adviser or department for funding. Many departments offer financial support for students who present their research at JSM. Students also may qualify for funding from the student activities office on their campus. For example, when I was a student, my department's statistics club received funding this way, which paid for most of my first JSM expenses.

In addition to school-based resources, many ASA sections sponsor student paper competitions that provide travel support to award winners. For example, the Biometrics Section of the ASA sponsors the David P. Byar Young Investigators Award, with $2,000 awarded to the winner and separate $1,000 awards given to authors of other outstanding papers. Most competitions require a completed paper to be submitted many months prior to JSM.

At JSM

JSM begins on a Sunday afternoon in late July. Business casual clothing is the most prevalent attire, but some attendees wear suits and others wear T-shirts and shorts. When you arrive at JSM,

go to the registration counter at the convention center to obtain your name badge and additional conference materials.

There is a significant online presence during JSM. A main resource is the JSM app and online program. Both contain all the information you'll need and more. Also, the ASA posts the most up-to-date news about JSM through its Twitter (@AmstatNews) and Facebook accounts. Attendees at JSM can use #JSM2017 to tag their JSM-related posts.

To welcome and orient new attendees, the JSM First-Time Attendee Orientation and Reception is scheduled for early Sunday afternoon. At this reception, docents will be present (identified with a special orange button by their name badge) to answer any questions you may have about the meetings. These docents will be available throughout the conference as well.

Later on Sunday evening, the Opening Mixer will be held in the exhibit hall. This event is open to all attendees, and drinks and hors d'oeuvres will be served.

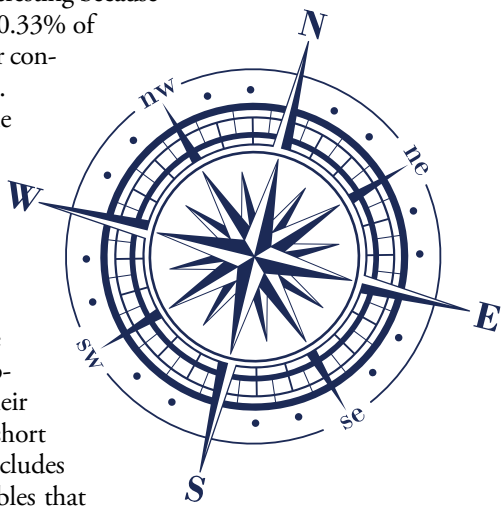
In between the orientation and the mixer, the ASA Awards Celebration and Editor Appreciation session is held. Many first-time attendees are honored during it due to being awarded a scholarship or winning a student-paper competition.

The main sessions start Sunday at 2:00 p.m. Many of the research presentations are difficult to understand completely. My goal for a session is to have 1–2 presentations in which I learn something relevant to my teaching or research interests. This may seem rather low, but these items add up after attending many sessions.

For attendees who teach introductory courses, the sessions sponsored by the ASA Section on Statistical Education are often the easiest to understand. Many of these sessions share innovative ideas about how to teach particular topics.

Introductory overview lectures are another type of session that has easier-to-understand topics. Recent lectures have included introductions to Big Data, bioinformatics, and complex survey sampling. There are also many Professional Development courses and workshops available for an additional fee. However, you can attend a course for free by volunteering prior to JSM to be a monitor. Monitors perform duties such as distributing and picking up materials during the course. As an added benefit, monitors can attend one additional course for free without any duties. Those who are interested should contact Rick Peterson at *rick@amstat.org*.

Featured talks at JSM are usually scheduled for late afternoon on Monday through Wednesday. On Tuesday evening, the ASA presidential address is given, along with an introduction to the new ASA fellows and winners of the Founders Award. The fellows introduction is especially interesting because approximately 50 ASA members (<0.33% of all members) are recognized for their contributions to the statistics profession.



In addition to presentations, the JSM exhibit hall features more than 70 companies and organizations exhibiting their products and services. Many exhibitors give away free items (e.g., candy, pens, etc.). All the major statistics textbook publishers and software companies are there. Textbook publishers usually offer a discount on their books during JSM and often for a short time after. The exhibit hall also includes electronic charging stations and tables that can be used for meetings. It's also the location for the poster presentations.

The JSM Career Service provides a way for job seekers and employers to meet. Pre-registration is required, and the fee is discounted if you register before mid-July. The service works by providing an online message center for job seekers and employers to indicate their interest in each other. Once a common interest is established, an interview can be arranged for during the meetings.

Other activities at JSM include the following:

- Shopping at the ASA Store to purchase a statistics-themed T-shirt or mug
- Attending an organized roundtable discussion during breakfast or lunch about a topic of interest (pre-registration is required)
- Taking a little time off from JSM for sightseeing or attending a sporting event

After JSM

JSM ends in the early afternoon on Thursday. Don't let what happens at JSM stay at JSM! The first thing I do after the meetings is prepare a short review of my activities. Using notes I took during sessions, I summarize items from presentations I want to examine further. I also summarize meetings I had with individuals about research or other important topics. Much of this review process starts at the airport while waiting for my return flight.

If you give a presentation at JSM, you may submit a corresponding paper to be published in the conference proceedings. Papers are not peer-reviewed in the same manner as for journals, but authors are encouraged to have others examine their paper before submission. The proceedings are published online around December. Authors retain the right to publish their research later in a peer-reviewed journal. ■

Important Links

JSM 2017: *ww2.amstat.org/jsm*

First-Time Attendees: *https://goo.gl/xcMor9*

Online Program: *https://goo.gl/PzEtQT*

Job Seekers: *https://goo.gl/OP53rt*

Professional Development: *https://goo.gl/WWruCZ*

Student Paper Competitions: *https://goo.gl/bNNaMC*

JSM Student Volunteer Opportunities

Lara Harmon, ASA Community Coordinator

Students, will you be joining us at JSM 2017? We hope to see you there! We're in Baltimore this year, and we've got plenty of opportunities lined up for you to get involved and learn more about what the ASA offers.

Would you like to …

MORE ONLINE
You can learn more about events and opportunities on the JSM 2017 website at *ww2.amstat.org/meetings/jsm.*

Attend a Continuing Education (CE) course for free?

JSM's CE courses give conference attendees a chance to dive into a new topic, brush up skills they already possess, and benefit from the knowledge of experts they might never otherwise have the chance to learn from in person. You can take advantage of all these benefits for free! As a CE monitor, you will help the course run smoothly while also observing course content and meeting course attendees and instructors. Interested? Contact Rick Peterson, the ASA's professional development and chapters and sections manager, at *rick@amstat.org*. Keep an eye on the JSM 2017 website for a list of CE courses at *https://goo.gl/awXTro*.

Meet presenters and get experience managing a session?

Session chairs introduce and support session presenters. The work of these volunteers helps keeps sessions on topic and running on time. It also gives the chairs the opportunity to meet and work directly with session presenters. Our session chair slots are full for JSM 2017, but you can volunteer to be an emergency backup. To learn more about what session chairs do, visit the JSM 2017 website at *https://goo.gl/B9rRHY*, scroll down to the "Chairs" bar, and click to see the details.

Learn more about student chapters?

The ASA established a student chapter program several years ago, and it's taken off—we now have more than 50 student chapters, thanks to your energy and enthusiasm! This year, we're planning our first JSM student chapter event. Join us to learn from the experiences of a panel of student chapter presidents and faculty advisers, and then break out into small groups to share your own ideas as we brainstorm about the future of student chapters. Time and place TBA. Contact Lara Harmon, marketing and online community coordinator, at *lara@amstat.org* if you're interested in helping with setting up and moderating the event.

Meet fellow student members from across the country (and the world)?

If you've been to JSM before, you've probably experienced the JSM student mixer. It's not to be missed! Join students from across the U.S. and abroad, both first-time attendees and seasoned pros, as we gather for drinks, snacks, and a free raffle on July 31 from 6–8 p.m. Prizes in past years have ranged from stats software packages to an Xbox 360 (so you might want to leave a little room in your carry-on luggage if you plan on attending)! We always appreciate a little extra help handing out raffle tickets before the mixer; if you're interested, contact Lara Harmon at *lara@amstat.org*.

Relax and put your feet up while helping children in need?

Networking and walking from session to session (to session to session) can wear you out, mentally and physically. If you need a break, check your program for IMPACT Baltimore activities. Head over to the exhibit hall at the times shown in the program and you can help make no-sew blankets for children in need. Last year, ASA members used up all the blanket-making materials we brought, and we're hoping to repeat our success this year. The blankets are easy to make and all supplies are provided, so grab some friends and do your daily good deed.

Dance?

Deviate from the standard conference routine and get to know your fellow ASA members in a casual environment. After meeting up with your peers at the Monday student mixer, we give you the chance to dance on Tuesday! A JSM tradition, the dance party invites you to mingle and chat or get out on the floor. Either way, you can relax, catch up on others' JSM experiences, and share your plans for the rest of the conference.

We hope you can come! ■

Data Art Show Returns

Explore the "art" in data art with the JSM exhibit featuring data artists. The exhibition will take place in Hall AB, inside the Baltimore Convention Center. JSM hosts thousands of professional statisticians from industry, government, and academia, so this is the perfect opportunity to have your data art seen! Submit your work by May 15. Visit *https://goo.gl/XVbB7s* for details.

Diversity Mentoring Program Is Now Accepting Applications

JSM 2016 diversity mentoring program participants received career information and mentoring and gained a peer network.

Applications are being accepted for the JSM Diversity Mentoring Program, which brings minority graduate and undergraduate students, postdoctoral scholars, and junior professionals together with senior-level statisticians and faculty in academia, government, and the private sector in a structured program during the Joint Statistical Meetings. The program provides career information, mentoring, and a peer network. Program activities include small-group discussions and one-on-one meetings between mentor-protégé pairs.

Apply online at *https://goo.gl/Wl2bm7*. Preference will be given to applications received by May 31. For more information, contact Dionne Swift at *swift.dp@pg.com*.

This program is sponsored by the American Statistical Association and the ASA Committee on Minorities in Statistics. ■

JSM Docents Are Ready to Help!

If you have more questions or need additional help working your way through JSM, find a docent! They have orange buttons and a ribbon on their badges and can provide additional information about the conference and tips for making the most of it!

If you have attended three or more JSMs, consider becoming a 2017 JSM docent by following these easy steps:

- Make plans to attend JSM 2017
- Be willing to answer questions and help first-timers have a positive JSM experience
- Attend an orientation session on July 30 and a thank-you reception
- Attend JSM events and invite first-timers to join you
- Send your contact information to Donna LaLonde at *DonnaL@amstat.org* for details

Ulf Grenander Prize

The Ulf Grenander Prize in Stochastic Theory and Modeling is a new prize that recognizes exceptional theoretical and applied contributions in stochastic theory and modeling. It is awarded for seminal work, theoretical or applied, in probabilistic modeling, statistical inference, or related computational algorithms, especially for the analysis of complex or high-dimensional systems. The prize was established by colleagues of Grenander, who died in 2016. A longtime faculty member and chair of the Brown University Department of Applied Mathematics, Grenander received many honors. He was a fellow of the American Academy of Arts and Sciences and the National Academy of Sciences, as well as a member of the Royal Swedish Academy.

Nominations are open until June 30 for the first Grenander Prize, which will be awarded in January 2018. Nominate someone at *https://goo.gl/Gx7VL0.* ■

Bertrand Russell Prize

The American Mathematical Society (AMS) has a new prize: Bertrand Russell Prize of the AMS. The prize was established by Thomas Hales of the University of Pittsburgh and honors research or service contributions of mathematicians or related professionals to promoting good in the world. It also recognizes the ways mathematics furthers human values.

Nominations are being accepted until June 30 for the 2018 prize at *https://goo.gl/KHW8o5.* ■

William G. Hunter Award

June 30 is the application deadline for the William G. Hunter Award (*https://goo.gl/uJCsEg*), sponsored by the Statistics Division of the American Society for Quality.

Presented annually, the award was designed to encourage the creative development and application of statistical techniques to problem solving in the quality field. Named in honor of the division's founding chair, the award recognizes that person (or persons) whose actions most closely mirror the following aspects of who Bill Hunter was:

- A communicator
- A consultant
- An educator (especially for practitioners)
- An innovator
- An integrator (of statistics with other disciplines)
- An implementer (who obtained results)

Download award criteria and a nomination form at *https://goo.gl/uJCsEg.* ■

Health Policy Statistics Section Achievement Awards

The 2018 HPSS Achievement Awards honor individuals who have made significant contributions to the development of statistical methods or have developed innovative statistical applications for health care policy or health services research to encourage research in this area and to increase awareness of the HPSS.

The HPSS Mid-Career Award recognizes someone who has shown leadership in the field of health care policy and health services research through outstanding contributions of methodological or applied work and the promise of continued excellence at the frontier of statistical practice that advances the aims of HPSS.

Candidates must be within 15 years of their terminal degree on January 1, 2017, and cannot be a previous HPSS Mid-Career Award winner. The 2015 winner is Elizabeth A. Stuart of The Johns Hopkins University.

The HPSS Long-Term Excellence Award recognizes significant contributions to health care policy and health services research through mentoring and/or service that advance the aims of HPSS. Candidates cannot be within 15 years of their terminal degree on January 1, 2017, and cannot be a previous HPSS Long-Term Excellence Award winner. The 2015 winners are Constantine A. Gatsonis of Brown University and Donald Hedeker of The University of Chicago.

These awards will be presented at the 12th International Conference on Health Policy Statistics (ICHPS), January 10–12, 2018, in Charleston, South Carolina (*https://goo.gl/XcFEi1*).

Nominations should include the following:

- The nominee's curriculum vitae
- A letter (not to exceed two pages) from the nominator summarizing the nominee's credentials
- Additional independent (other than the nominator or nominee) evaluation letters (not required)
- Contact information for the nominee or nominator (if different)

Nominations should be sent by midnight on August 11 to the awards committee at *HPSSAwards2018@gmail.com.*

Questions should be directed to *HPSSAwards2018@gmail.com.* ■

Davina Durgana and **Paul Zador**, both statisticians working in the anti-trafficking field, presented several potential techniques to improve how data are collected and analyzed during a presentation at AAAS in March. They walked through strategies that could provide investigators a better idea of the number of trafficking victims in a given geographical area.

Jessica Wyndham—interim director of the AAAS Scientific Responsibility, Human Rights, and Law Program—noted the world's largest general scientific organization has a long history of applying science and technology to address human rights concerns.

"We are pleased to be able to co-host this event highlighting the value of rigorous statistical methods in determining human trafficking prevalence, and hope that this work will contribute to the design of effective programs to address human trafficking and support those affected," Wyndham said.

The presentation was co-organized by AAAS, the Washington Statistical Society, and Statistics without Borders—a group that offers trained volunteers capable of using statistics and data science to help solve problems.

Details of the presentation can be viewed on the AAAS website at *https://goo.gl/Nb5Ld0.* ■

Obituary
Joseph Hilbe

Hilbe

Joseph Hilbe, fellow and longtime member of the ASA, passed away March 12.

Hilbe's work and life reflected his passions, including track and field, astronomy, and statistics.

Hilbe excelled as a track and field athlete. He was listed in the *Track and Field News* World List rankings in the 100 yards (1967) and 400 meters (1965), and he set the Hawaii state records in the Javelin (1976). He played numerous roles as a leader in track and field and was hired by the Turner Broadcasting System to serve as athletics broadcast coordinator for the 1990 Goodwill Games in Seattle, Washington.

His love for astronomy led to him initiating the International Statistical Institute (ISI) Astrostatistics Interest Group. In 2009, the ISI council approved the creation of the group, which eventually led to the first professional association for astrostatisticians, the International Astrostatistics Association, with Hilbe elected as its founding president.

Hilbe was a fellow of the ASA and Royal Statistical Society, an elected member of the ISI, and a full member of the American Astronomical Society. From 1997 to 2009, he served as software reviews editor for *The American Statistician*, becoming one of the longest-serving editors for the publication.

In addition to editing *TAS*, Hilbe published numerous works, co-edited the Astrostatistics and Astroinformatics Portal, edited the Springer Series in Astrostatistics, and served as coordinating editor of the Cambridge University Press Series on Predictive Analytics in Action. He chaired the ISI's sports statistics committee, and was chair of the ASA Statistics and Sports Section in 2014.

Hilbe is survived by his wife, Cheryl Hilbe; his children; and his grandchildren.

Read more about his life on his Wikipedia page at *https://en.wikipedia.org/wiki/Joseph_Hilbe.*

Hampshire College student **Brooke Fitzgerald** was recently awarded the Lorna M. Peterson Prize, which celebrates Peterson's long commitment to collaboration as a means of advancing understanding and expanding opportunity.

Fitzgerald was awarded the $500 prize for the research projects at Smith and Hampshire and activities such as DataFest that foster collaboration in the data sciences among students and faculty members from across the Five Colleges.

Fitzgerald did great work in Introduction to Statistical Learning in the fall of 2015, particularly on her final project in which she applied a large range of supervised and unsupervised machine learning methods to analyze astrometric data on Hyades star cluster.

To read more about the program and additional student awardees, visit *www.fivecolleges.edu/statistics/news.* ■

sectionnews

Survey Research Methods

The Online Proceedings of the Survey Research Methods Section (SRMS) for the 2016 Joint Statistical Meetings, held in Chicago, are available at *ww2.amstat.org/sections/srms/Proceedings*.

The section is actively searching for a student to work on assembling the proceedings for the next JSM (with a $500 stipend). If you are a student interested in working on this project, contact the section's publication officer, Tony An, at *Tony.An@sas.com.*

2017 JSM Updates

The 2017 JSM, to be held in Baltimore, is fast approaching. The Survey Research Methods Section sponsors 10 invited sessions, 13 topic-contributed sessions, and 12 contributed sessions. In addition, the section sponsors traditional and speed poster sessions, three full-day short courses, and two P.M. roundtables. Here is a preview of the 2017 lineup:

Continuing Education Courses

- **Synthetic Data Sets for Statistical Disclosure Limitation**
  Led by Jörg Drechsler of the Institute for Employment Research, IAB, Nuremberg, Germany, and Jerry Reiter of Duke University
  This course focuses on practical aspects of confidentiality protection and provides an overview of modeling strategies, analytical validity evaluations, and potential measures to quantify the remaining risk of disclosure, with illustrations of R programming.
- **Construction of Weights in Surveys**
  Led by David Haziza of the University of Montréal
  This course offers a detailed description of weighting methods, including inversion of probability of selection, nonresponse adjustment, calibration, and trimming adjustments.
- **Research and Analysis Workflows: Low-Cost, Every-Day Project Management Techniques, Tools, and Tips That Produce High-Quality, Streamlined, Stress-Free Research and Data Science**
  Led by Matt Jans of Abt Associates and Abhijit Gupta of ARAASTAT
  The first half of this course introduces general project and time management techniques. The second half focuses on best practices for the data science pipeline to minimize errors, maximize time to think, and maintain reproducibility.

Invited Sessions

- **Bayesian Adaptive Survey Designs**, organized by Natalie Shlomo of the University of Manchester
- **Improper Imputation**, organized by Paul T. von Hippel of The University of Texas
- **Recent Development of Bayesian Methods in Survey Sampling**, organized by Yajuan Si of the University of Wisconsin-Madison
- **Session in Honor of Jim Lepkowski's Retirement**, organized by Michael R. Elliott of the University of Michigan
- **Analyzing Government Data with Missing Item Values: A WSS Invited Session**, organized by Phillip Kott of RTI International
- **Environmental Surveys: A Hot Spot for Statisticians**, organized by Stanislav Kolenikov of Abt SRBI
- **Multiple Imputation for Complex Health Survey Data**, organized by Joseph Kang of the National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention
- **Nonparametric Saturated Methods to Handle Nonignorable Missing Data**, organized by Mauricio Sadinle of Duke University
- **Recent Developments in Survey Sampling, Session in Honor of J.N.K. Rao's 80th Birthday**, organized by David Haziza of the University of Montréal
- **Using Big Data to Improve Official Economic Statistics**, organized by Carma R. Hogue of the U.S. Census Bureau

Topic-Contributed Sessions

- **Current Themes in Record Linkage Research**, organized by Jana L. Asher of AABB
- **Improving Efficiency and Maintaining High Data Quality: Outcomes for the 2017**

Survey of Consumer Finances, organized by Catherine C. Haggerty of NORC at the University of Chicago

- **Methods for Imputing Missing Survey Data**, organized by Daniell Toth of the Bureau of Labor Statistics
- **Multiple Imputation for Measurement Errors and Other Structured Patterns of Missing Data**, organized by Philipp Gaffert of GfK
- **Practical Applications of Small Area Estimation**, organized by Andreea L. Erciulescu of NISS and USDA NASS
- **New Developments in Small Area Estimation Research at the U.S. Census Bureau**, organized by Robert Ashmead of the U.S. Census Bureau
- **Nonparametric Modeling of Survey Data**, organized by Daniell Toth of the Bureau of Labor Statistics
- **Non-Probability Sampling and Estimation: Fit for Purpose Designs**, organized by Karol Krotki of RTI International
- **Nontraditional Approaches for Sampling Rare Populations**, organized by Sunghee Lee of the University of Michigan
- **Time-Trend Analysis with Complex Survey Data**, organized by Dan Liao of RTI International
- **Advances in Modeling Multilevel Observational Data from Complex Surveys**, organized by Mulugeta Gebregziabher of MUSC
- **GSS/SSS/SRMS Student Paper Award Presentations**, organized by Stanislav Kolenikov of Abt SRBI
- **Improving Data Quality and Estimation Methods for the Current Employment Establishment Survey**, organized by Greg Erkens of the Bureau of Labor Statistics

Contributed Sessions

- **Combining Data and Use of Administrative Lists**
- **Estimation with Complex Samples**
- **Estimation with Non-Probability Samples**
- **Estimation with Statistical Models**
- **Impact of Data Collection Modes and Data Sources**
- **Imputation and Nonresponse Bias**
- **Instrumentation and Data Quality**
- **Predicting Attrition and Adaptive Strategies**
- **Sample Design**
- **Small Area Estimation and Use of Unit-Level Models**
- **Weighting Adjustments**
- **Weighting and Variance Estimation**

P.M. Roundtables

- **The Connectivity of Data Science to Survey Design and Statistical Practice**, led by Steve Cohen of RTI International.

  This roundtable will focus on the capacity of data science to improve the design of surveys and their operations. We will also discuss strategies for reducing survey errors and enhancing data quality.

- **Election 2016 Polling: What We Learned**, led by Mark Schulman of Abt SRBI

  We will cover both the methodological issues and the sizeable misses by many pollsters, as well as substantive issues in campaign strategies, electoral map, and media coverage.

The SRMS will hold its annual poster competitions in which the most informative and interesting posters will be awarded with cash prizes. The traditional poster session will be from 10:30 a.m. - 12:20 p.m. on August 1. SRMS has 11 contributed posters during this session.

The SRMS also gives out awards for winners in a speed presentation session that consists of 20 presenters. The speed presentation involves two parts. The first is for oral presentation and will take place from 8:30 a.m.–10:20 a.m. on August 2. Each presenter will talk for five minutes about their work. The second part is for "learning more." It will immediately follow the oral session, taking place from 10:30 a.m.–12:20 p.m. Each presenter is provided a computer to present their work in detail.

If you are interested in volunteering as a judge for either the poster competition or speed presentation,

contact SRMS program chair-elect, Stas Kolenikov, at *skolenik@gmail.com*. The winners will be announced at the section's business meeting on the evening of August 2. ■

Statistical Education

Dalene Stangl and Kelly McConville

The 2017 JSM program will include nearly 100 speakers sponsored by the Statistical Education Section. These speakers will appear throughout three invited sessions, five topic-contributed sessions, five contributed sessions, 24 speed/posters, and 11 roundtables.

Invited Sessions

- **Modernizing the Undergraduate Statistics Curriculum**
  Speakers: Nick Horton, Hilary Parker, Jo Hardin, and Colin Rundel
- **Novel Approaches to First Statistics / Data Science Course**
  Speakers: Ben Baumer, Mine Çetinkaya-Rundel, Rebecca Nugent, and Daniel Kaplan
- **Training Statisticians to Be Effective Instructors**
  Panelists: Adam Loy, Jennifer Kaplan, Meghan Short, Patricia Buchanan, and Paul Stephenson

Topic-Contributed Sessions

- **Being Research Active in Teaching-Focused Colleges**
- **The Essential Connections Between Industry and Statistics Education: Innovation, Technology, and Partnerships**
- **Design, Implementation, and Impact of Different Approaches to Professional Development for Teachers of Statistics**
- **Teaching Introductory Statistics Using Simulation-Based Inference Methods**
- **Modernizing the Statistical Collaboration Course**

Contributed Sessions

- **Advances in Pedagogy**
- **Technologies in the Classroom**
- **Teaching Special Groups and Undergraduate Research**
- **Teaching Introductory Statistics and Biostatistics**
- **Topics in Math/Stat and Advanced Courses**

Roundtables

We have a great slate of roundtables this year. Roundtables are an informal, themed discussion over breakfast or lunch. They are a great way to meet educators from other institutions. Registration for roundtables opens with general registration on May 1.

A.M. Roundtables

- **Infusing Data Science into the Statistics Curriculum**
- **Turning a Tweet into a Lesson: Using Current Events as a Context**
- **Introducing Bayesian Statistics at Courses of Various Levels**
- **Why Do Students Hate Statistics?**

P.M. Roundtables

- **A Course in Business Analytics**
- **Student Involvement in Community Projects**
- **Discussing the Uses and Creation of R Shiny Applications**
- **Incorporating Complex Survey Concepts into the Curriculum**
- **Recruiting and Engaging Students**
- **GAISEing at a Lecture Hall: Effective Pedagogy in Large-Enrollment Courses**
- **What Are the 25 Most Common Terms in Statistics from the Last 20 Years?**

For more information about the JSM program, view the online program at *ww2.amstat.org/jsm* and check out the program section. For information about the Statistical Education Section, visit *https://goo.gl/h5rmPS*. ■

Biopharmaceutical

The Biopharmaceutical Section extends its invitation for the 2017 mentoring program to all biopharmaceutical section members.

Networking can be challenging, but it is beneficial. Meeting others in our profession can help us quickly learn the ropes, improve our careers, and contribute to the statistical profession. Finding a mentor has its challenges and, keeping that in

mind, the Biopharmaceutical Section has created a mentoring program based on the mentoring blueprint created by the Committee on Applied Statisticians. More than 100 people have participated in our mentoring program since 2014.

Mentor Allison Florance said, "The ASA Biopharmaceutical Section did a great job in matching me to a mentee. It has been a win-win for both of us!"

Mentor Bruce Binkowitz said, "The ASA Biopharmaceutical Section did a great job matching me with a mentee. I feel I have a lot to offer her, and, in return, since she is in a different type of statistics company than I am, I learn a lot about issues and challenges that occur in her environment …"

Mentee Nobuhle Mpofu said, "The biopharmaceutical mentoring program has proved to be invaluable to me. Through my countless conversations with my mentor, I chose to focus on a thesis topic that is of high interest to me and yet highly relevant to the pharmaceutical industry and other settings."

The goal of this program is to help members further enrich their professional experience through achieving personal and professional goals. This may occur through sharing of knowledge and experience between a professional practitioner and someone entering the profession.

A constructive mentorship relationship can take many forms and may occur at any stage of one's career with benefits for both the mentor and mentee. We will provide hands-on resources for mentors and mentees to facilitate their interactions. Information related to the mentoring activities and additional resources for mentors and mentees is available via the Biopharmaceutical Section website (*https://goo.gl/hCPnmK*).

Currently, we are looking for mentors and mentees for the 2017–2018 mentoring program. Are you interested in becoming a mentor to a biopharmaceutical statistician? Are you a potential mentee, or can you nominate a statistician who may be looking for a mentorship program? If so, please email your contact information to *biopharmmentoring@gmail.com* with "Biopharmaceutical Section Mentoring Program" in the subject line. ■

Boston University Student Chapter Rocks!

The ASA's Boston University Student Chapter had a rock-climbing social. Kristin Baltrusaitis (left), Heather Shappell, Clementine Mottet, Kendra Plourde, Ellie Gurary, Crystal Qin, Scarlett Li, and Dan Posner took part. The chapter is also in the final stages of planning for their annual Statistics in Practice panel. This year, the theme is "Statistics in New Media Technology," and the panel will feature speakers from Facebook, Spotify, and Boston Children's Hospital. To learn more about the ASA's student chapters or to start one, visit *https://goo.gl/dtPQod*.

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

2017

May

15–17—ARS'17 International Workshop, Naples, Italy
For details, visit *www.ars17.unisa.it/index* or contact Maria Rosaria D'Esposito, Via Giovanni Paolo II, Fisciano (SA), International I-84084, Italy; (+39) 089962206; *mdesposi@unisa.it*.

»*17–19—IMS/ASA Spring Research Conference 2017, New Brunswick, New Jersey
For more information, visit *statistics.rutgers.edu/src2017* or contact Ying Hung, 110 Frelinghuysen Road, Piscataway, NJ 08854; (848) 445-2690; *yhung@stat.rutgers.edu*.

22–24—40th Annual Midwest Biopharmaceutical Statistics Workshop (MBSW), Muncie, Indiana
For details, visit *www.mbswonline.com* or contact Melvin Munsaka, One Takeda Parkway, Deerfield, IL 60015; (224) 554-2846; *melvin.munsaka@takeda.com*.

29—Workshop on Statistical Perspectives of Uncertainty Quantification, Atlanta, Georgia
For details, visit *pwp.gatech.edu/spuq-2017* or contact Roshan Joseph, Industrial and Systems Engineering, Atlanta, GA 30332-0205; (404) 894-0056; *roshan@gatech.edu*.

31–6/2—Statistical Analysis of Neural Data (SAND8), Pittsburgh, Pennsylvania
For details, visit *sand.stat.cmu.edu* or contact Barbara Dorney, CNBC, Pittsburgh, PA 15122; (412) 268-6557; *dorney@cmu.edu*.

June

5–7—14th Graybill Conference on Statistical Genetics and Genomics, Fort Collins, Colorado
For details, visit *graybill.wolpe2.natsci.colostate.edu* or contact Wen Zhou, 208 Statistical Building, Colorado State University, Fort Collins, CO 80523; (970) 491-1306; *riczw@stat.colostate.edu*.

7–9—ISBIS 2017 - Statistics in Business Analytics, Yorktown Heights, New York
For more information, visit *www.isbis2017.org* or contact ISBIS 2017, 1101 Kitchawan Road, Route 134, Yorktown Heights, NY 10598; (914) 945-1793; *isbis2017@gmail.com*.

9–10—Conference in Celebration of Jeremy Taylor's 60th Birthday, Ann Arbor, Michigan
For more information, visit *https://goo.gl/P9GJil* or contact Menggang Yu, 600 Highland Ave., Madison, WI 53792; (608) 261-1988; *meyu@biostat.wisc.edu*.

11–23—Summer Institute in Social-Science Genomics, Santa Barbara, California
For details, visit *https://goo.gl/fpQH2N* or contact Dan Benjamin, 312 Dauterive Hall, Los Angeles, CA 90089; (617) 548-8948; *RSF.Genomics.School@gmail.com*.

»12–16—An Introduction to Causal Inference, Boston, Massachusetts
For more information, visit *www.hsph.harvard.edu/causal/shortcourse* or contact Shaina Andelman, 655 Huntington Ave., Building 2, 4th Floor, Boston, MA 02115; (617) 432-7449; *sandelma@hsph.harvard.edu*.

13–15—2017 Quality and Productivity Research Conference, Storrs, Connecticut
For details, visit *qprc2017.org* or contact Nalini Ravishanker, AUST 333, 215 Glenbrook Road, Storrs, CT 06269; (860) 486-4760; *nalini.ravishanker@uconn.edu*.

15–19—International Workshop on Perspectives on High-dimensional Data Analysis (HDDA-VII), Guanajuato
For details, visit *hddavii.eventos.cimat.mx* or contact Lilia Leticia Ramirez, Calle Jalisco SN Col Valenciana, Guanajuato, International 36023, Mexico; +52 473 732 7155 x 4490; *leticia.ramirez@cimat.mx*.

18–7/1—Summer Institute in Computational Social Science, Princeton, New Jersey
For details, visit *www.russellsage.org/summer-institute-computational-social-science* or contact Matt Salganik, 145 Wallace Hall, Princeton, NJ 08544; (609) 258-8867; *rsfcompsocsci@gmail.com*.

20–23—The 10th International Conference on Multiple Comparison Procedures, Riverside, California
For details, visit *www.mcp-conference.org* or contact Xinping Cui, 1337 Olmsted Hall, University of California at Riverside, Riverside, CA 92521; (951) 827-2563; *xinping.cui@ucr.edu*.

»26–28—LASR Workshop, Leeds, United Kingdom
For details, visit *https://goo.gl/9Kd2U9* or contact Jessica Brennan, University of Leeds, Leeds, International LS2 9JT, UK; 01133435116; *leeds.lasr@gmail.com*.

26–30—10th Extreme Value Analysis Conference, Delft, The Netherlands
For more information, visit *www.eva2017.nl* or contact John Einmahl, P.O. Box 90153, Tilburg, International 5000LE, Netherlands; +31 134668208.

July

2–7—IWSM 2017, Groningen, The Netherlands
For more information, visit *iwsm2017.webhosting.rug.nl* or contact Marco Gzegorczyk, Nijenborgh 9, Groningen, International 9747 AG, Netherlands; +31503633985; *m.a.grzegorczyk@rug.nl.*

***3–7—ICORS 2017, Wollongong, Australia**
For more information, visit *https://goo.gl/7dtu3x* or contact Anica Damcevski, NIASRA, University of Wollongong, Wollongong, International 2522, Australia; 0061-2-4221-5435; *icors2017@uow.edu.au*.

3–7—Research on Productivity, Trade, and Growth: Theory and Practice, Amsterdam, The Netherlands
For more information, visit *https://goo.gl/jI9zvc* or contact Judith van Kronenburg, Gustav Mahlerplein 117, Amsterdam, International 1087 MS, The Netherlands; +31 (0)10 40 88919; *summerschool@tinbergen.nl.*

9–13—38th Annual Conference of the International Society for Clinical Biostatistics, Vigo, Spain
For details, visit *jacobo.webs.uvigo.es/Flyer_ISCB38.pdf* or contact Jacobo de Uña Álvarez, University of Vigo, Department of Statistics and OR, Vigo, International 36310, Spain; 986812492; *jacobo@uvigo.es*.

»10–12—Small Area Estimation 61th ISI World Statistical Congress Satellite Meeting, Paris, France
For more information, visit *sae2017.ensai.fr* or contact Daniel Bonnery, 1218 LeFrak Hall, 7251 Preinkert Dr., College Park, MD 20742; (301) 314-7911; *dbonnery@umd.edu*.

10–22—Bocconi Summer School in Statistics and Probability: Statistical Causal Learning, Como, Italy
For more information, visit *http://spas.lakecomoschool.org* or contact Sonia Petrone, Via Roentgen 1, Milano, International 20123, Italy; +39 0258365602; *sonia.petrone@unibocconi.it.*

10–28—2017 UW Biostatistics Summer Institutes, Seattle, Washington
For details, visit *https://goo.gl/RrWcba* or contact Deb Nelson, UW Tower 15T, Campus Box 359461, Seattle, WA 98195; (206) 685-9323; *uwbiost@uw.edu*.

12–14—Data Science, Statistics, and Visualisation (DSSV 2017), Lisbon, Portugal
For details, visit *iasc-isi.org/dssv2017* or contact Peter Filzmoser, Vienna University of Technology, Vienna, International 1040, Austria; +43 1 58801 10560; *P.Filzmoser@tuwien.ac.at*.

17–21—Introduction in Genome-Wide Data Analysis, Amsterdam, The Netherlands
For details, visit *https://goo.gl/ajGxSH* or contact Judith van Kronenburg, Gustav Mahlerplein 117, Amsterdam, International 1087 MS, The Netherlands; +31 (0)10 40 88919; *summerschool@tinbergen.nl*.

17–22—Crash Course in Experimental Economics, Amsterdam, The Netherlands
For more information, visit *https://goo.gl/CfdGKc* or contact Judith van Kronenburg, Gustav Mahlerplein 117, Amsterdam, International 1087 MS, The Netherlands; +31 (0)10 40 88919; *summerschool@tinbergen.nl*.

***29–8/3—2017 Joint Statistical Meetings, Baltimore, Maryland**
For more information, visit *ww2.amstat.org/jsm* or contact ASA Meetings, 732 N. Washington St., Alexandria, VA 22314; (703) 684-1221; *meetings@amstat.org*.

August

3–5—23rd ISSAT International Conference on Reliability and Quality in Design (RQD 2017), Chicago, Illinois
For details, visit *issatconferences.org* or contact RQD 2017 Conference Secretary, P.O. Box 1504, Piscataway, IL 08855; *rqd@issatconferences.org*.

8–12—XXVII International Symposium on Statistics, Medellín, Colombia
For more information, visit *https://goo.gl/V3y9pT* or contact Carlos Eduardo Alonso Malaver, Calle 44 No. 45-67, Bogotá, International 111321, Colombia; 57-1 3165327; *simestadi_fcbog@unal.edu.co*.

8–12—MiF2017, Kruger National Park, South Africa
For more information, visit *www.up.ac.za/mif2017* or contact Riaan de Jongh, 12 Bodensteinstreet, Potechefstroom, International 2531, South Africa; 27829050880; *riaan.dejongh@nwu.ac.za*.

12–14—Second Workshop on Higher-Order Asymptotics and Post-Selection Inference (WHOA-PSI)^{2}, St. Louis, Missouri
For more information, visit *https://goo.gl/fE3rdE* or contact Todd Kuffner, 1 Brookings Dr., Campus Box 1146, St. Louis, MO 63130; *kuffner@wustl.edu*.

28–9/1—CEN-ISBS Vienna 2017 Joint Conference on Biometrics & Biopharmaceutical Statistics, Vienna, Austria
For details, visit *www.cenisbs2017.org* or contact Alexandra Seppi, Mariannengasse 32, Vienna, International 1090, Austria; *cenisbs2017@aimgroup.eu*.

September

»4–7—International Conference on Class Groups of Number Fields and Related Topics, Allahabad, India
For details, visit *https://goo.gl/sVgK0x* or contact Azizul Hoque, Chhatnag Road, Jhunsi, Allahabad, International 211019, India; +91-532-227 4373; *azizulhoque@hri.res.in*.

21–24—Mountain Village Science Series (MOVISS 2017), Vorau, Austria
For details, visit *www.moviss.eu* or contact Peter Filzmoser, Wiedner Hauptstr. 8-10, Vienna, International 1040, Austria; +43 1 58801 10560; *P.Filzmoser@tuwien.ac.at*.

***25–27—2017 ASA Biopharmaceutical Section Regulatory-Industry Statistics Workshop, Washington, DC**
For more information, visit *ww2.amstat.org/meetings/biopharmworkshop/2017* or contact ASA Meetings, 732 North Washington St., Alexandria, VA 22314; (703) 684-1221, *meetings@amstat.org*.

October

***4–6—Fall Technical Conference, Philadelphia, Pennsylvania**
For details, visit *www.falltechnicalconference.org* or contact Maria Weese, 800 E. High St., Oxford, OH 45056; (513) 529-0591; *weeseml@miamioh.edu*

***11–13—ASA Symposium on Statistical Inference, Bethesda, Maryland**
For more information, visit *ww2.amstat.org/meetings/ssi/2017* or contact ASA Meetings, 732 North Washington St., Alexandria, VA 22314; (703) 684-1221; *meetings@amstat.org*.

12–14—Design and Analysis of Experiments (DAE 2017) Conference, Los Angeles, California
For more information, visit *https://goo.gl/g5ekI9* or contact Hongquan Xu, Department of Statistics, Los Angeles, CA 90095-1554; (310) 206-0035; *hqxu@stat.ucla.edu*. ■

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Also, look for job ads on the ASA website at *www.amstat.org/jobweb.*

Georgia

■Emory University's Department of Biostatistics and Bioinformatics is recruiting a dynamic leader for this rapidly evolving field to serve as chair. We seek candidates with a doctoral degree in biostatistics, statistics, or a related discipline, strategic understanding of trends in the field, demonstrated ability to foster creativity, proven leadership abilities, and strong advocacy for methodological and collaborative research. View the full job ad at *www.sph.emory.edu/BIOSchair.pdf*. Emory University is an equal opportunity / affirmative action / disability / veteran employer.

New York

■Stony Brook Department of Applied Mathematics and Statistics seeks to fill tenure-track assistant professor position in quantitative finance. Applicants should send cover letter, research statement, teaching statement, reprints or preprints of research publications, resume/CV, and arrange to have three letters of recommendation emailed to *qf_faculty_search@stonybrook.edu*. For a full position description, or application procedures visit: *www.stonybrook.edu/jobs (F-9745-17-02)* Stony Brook University is an EEO/AA employer and educator.

Ohio

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Department Chair and Rollins Professor

Biostatistics and Bioinformatics

EMORY

ROLLINS SCHOOL OF PUBLIC HEALTH

The Rollins School of Public Health (RSPH) of Emory University is recruiting a dynamic leader with a forward-looking vision for this rapidly evolving field to serve as Chair of the Department of Biostatistics and Bioinformatics (BIOS; sph.emory.edu/departments/bios). Applicants should possess a doctoral degree in Biostatistics, Statistics, or a related discipline; a prominent record of academic research, scholarship, service, and teaching; a demonstrated capacity to secure external research funding; dedication to faculty career development and to training the next generation of biostatistics students; and strong advocacy for methodological and collaborative research. Candidates should have a strategic understanding of trends in the field; demonstrated ability to foster creativity and innovation; and proven leadership and management abilities in a complex environment. The committee will accept applications from candidates with an established record that merits appointment as a tenured full professor. The Department Chair position is supported by an endowed Rollins chair.

The Department includes 35 primary faculty members currently supported by a wide range of external funding, as principal investigators, core directors, and co-investigators. Faculty investigators engage in research on a diverse range of issues such as survival analysis, spatial statistics, bioinformatics, imaging, statistical genetics, measurement error models, and clinical trials. Faculty members also engage in statistical modeling in Alzheimer's disease, infectious diseases, cancer, cardiovascular, renal, and other chronic diseases, as well as environmental and mental health. There is a strong tradition of collaboration between BIOS faculty and faculty from other departments in RSPH and the School of Medicine, Woodruff School of Nursing, the College of Arts and Sciences, Laney Graduate School, and Winship Cancer Institute.

The Department has approximately 50 masters and 45 doctoral students and hosts one of the NHLBI's Summer Institutes for Training in Biostatistics (SIBS). Additionally, the Department is home to the Center for Biomedical Imaging Statistics, and biostatistical cores for the Winship Cancer Institute, the Emory Center for AIDS Research, and the Atlanta Clinical and Translational Science Institute. Research and training collaborations occur between the Department and a host of local, national, and global institutions, including the Georgia Department of Public Health, CDC, VA, NIH, the National Academies, the Bill and Melinda Gates Foundation, and the World Health Organization.

RSPH currently employs over 190 full-time faculty members and enrolls over 1200 full- and part-time graduate students in its MPH, MSPH and doctoral programs. The School is located on the Emory University campus, adjacent to the CDC, Emory's Schools of Medicine and Nursing, and a number of laboratory and clinical facilities. Emory is a major research university and member of the AAU; its endowment is among the largest of US universities. The university enrolls over 14,000 students, approximately half in undergraduate programs and half in graduate and professional programs, taught by 3,000 faculty.

Applicants should apply to Emory position 69371 and send a letter indicating their interest accompanied by a curriculum vita to: Dr. Colleen McBride, Search Committee Chair, c/o Ashley Mastin (amastin@emory.edu). Applications will be kept confidential and references will not be contacted without the permission of applicants.

The starting date is negotiable and salary is commensurate with qualifications. Review of applications will begin immediately and continue until the position is filled.

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Next month's question: How do others react when you tell them you are a statistician? Make sure to tag @AmstatNews in your response.

Because April was Mathematics and Statistics Awareness Month, our Facebook followers shared who or what inspired them to be statisticians.

Scott Thomas R. A. Fisher. Though he died before I was born, he is an inspiration. My professors were amazing as well, especially my advisor.

Ryan Kappedal Didn't have enough personality to be an accountant.

Steven Weaver Major League Baseball

Becky Elliott I was a math major at Purdue, working a summer temp job as a secretary. I met a statistician who visited the plant and talked to him about his profession. What he said made me change my major to Stats. It was (I'm retired now) the best profession for me.

Md Jamal Uddin My uncle who is a Statistician!

Hakiim Jamaluddin My Probability Theory Lecturer where I changed from Maths to Stats

Hópihe Bauerfalvi *FourFourTwo* magazine's league standings statistics at the age of 9

Cliff Claven It was a way to help people understand the processes or products they either made or used, through numerical methods.

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