January 2014 • Issue #439

AMSTATNEWS

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

The ASA in Their Words

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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

columns

The ASA will celebrate its 175th anniversary in 2014. In preparation, column "175"—written by members of the ASA's 175th Anniversary Steering Committee and other ASA members—will chronicle the theme chosen for the celebration, status of preparations, activities to take place, and, best yet, how you can get involved in propelling the ASA toward its bicentennial.

Wasserstein

Contributing Editor

Ron Wasserstein is the ASA's executive director and president of Kappa Mu Epsilon National Mathematics Honor Society. Previously, he was vice president for academic affairs at Washburn University.

This column is written for statisticians with master's degrees and highlights areas of employment that will benefit statisticians at the master's level. Comments and suggestions should be sent to Megan Murphy, *Amstat News* managing editor, at *megan@amstat.org.*

Murray

Contributing Editors

Sharon Murray is manager of statistics at GlaxoSmithKline. She holds a BA in statistics from the University of Michigan and master's and PhD degrees in biostatistics from The University of North Carolina at Chapel Hill.

Kaur

Amarjot Kaur is the current chair of ASA Committee on Applied Statisticians and has contributed actively in its various activities. She earned her PhD in statistics and is an executive director of clinical biostatistics at Merck Research Laboratories. She has contributed extensively to the statistical applications in the field of medicine and public health, including general clinical trial designs and analyses. Prior to joining Merck, Kaur was a postdoctoral fellow in the department of statistics at Penn State.

Gauvin

Jennifer Gauvin earned her PhD in statistics from North Carolina State University. She works at GlaxoSmithKline in clinical statistics.

TRIVIA *CHALLENGE*

The ASA's Trivia Challenge is a fun way to read *Amstat News* and learn about the ASA. Every month, there will be three questions asked here, with the answers scattered throughout the magazine. Search for those answers while you're reading the issue and input your answers at *www.amstat.org/asa175/triviachallenge.cfm*. Whoever has the most correct answers at the end of each quarter will be entered into a drawing to win a 175th anniversary T-shirt!

1. The ASA Community is available to
   - A. Only section and chapter members
   - B. All ASA members
   - C. The public
   - D. The ASA staff

2. During the IYS 2013 Workshop "The Future of Statistical Science," we learned the community of statisticians has been guilty of
   - A. Poor marketing, for not everyone who should know what we have to offer does know
   - B. Being clumsy
   - C. Being non-traditional
   - D. All of the above

3. The building in which the American Statistical Society was founded no longer exists.
   - True
   - False

This quarter's winner will be announced in the May issue.

Make the most of your ASA membership
Visit the ASA Members Only site: *www.amstat.org/membersonly*.

Visit the **ASA Calendar of Events**, an online database of statistical happenings across the globe. Announcements are accepted from educational and not-for-profit organizations. To view the complete list of statistics meetings and workshops, visit *www.amstat.org/dateline*.

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*.


ZuWallack

Contributing Editor
Randy ZuWallack is a senior statistician with Abt SRBI, where he specializes in sampling design and data collection methodologies spanning topics such as public health, housing, and transportation. His road to survey statistics started with a BA in mathematics from SUNY-Geneseo and an MS in statistics from UMass-Amherst.

This column is written to inform ASA members about what the ASA is doing to promote the inclusion of statistics in policymaking and the funding of statistics research. To suggest science policy topics for the ASA to address, contact ASA Director of Science Policy Steve Pierson at *pierson@amstat.org*.


Auerbach

Contributing Editor
Jonathan Auerbach is a statistician/policy wonk hybrid with a master's in statistics from Columbia University. During the day, he is an analyst at the finance division of New York City's legislative body, the New York City Council.

departments

member news

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175 and Counting!

What should I write about in my first column as ASA president? Lots of things come to mind. For one, I'd like to thank the membership for electing me. I'm honored and happy to be in this position, and I look forward to serving you.

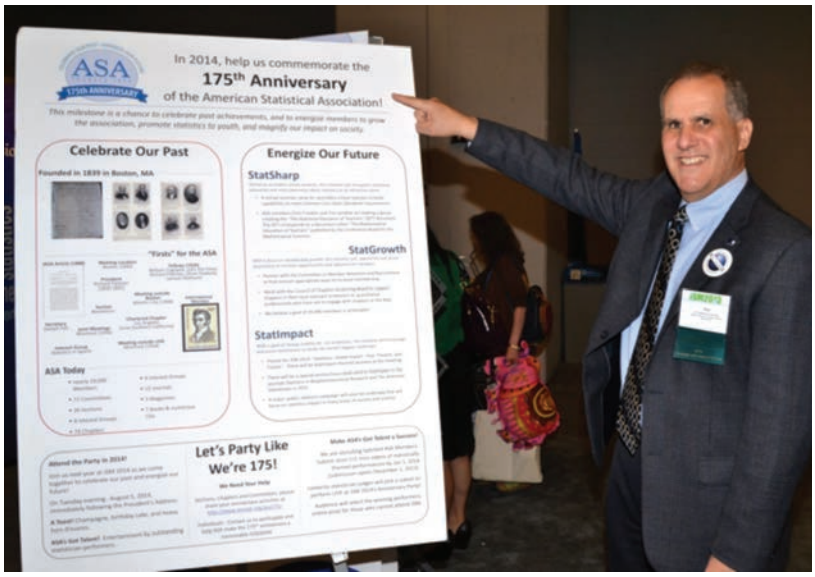
Believe it or not, when I received the phone call back in 2011 inviting me to be a candidate, I had doubts about whether to accept the nomination for various reasons. So why did I do it? Well, first, my wife told me to, and she's always right. Second, standing for election as president of one of my professional homes and the main "constant" in my nearly 30-year career was an honor I couldn't easily turn down. Third, I've found a huge amount of value in ASA membership and service over the years, so I wanted to give back to the ASA—and I knew I'd find even more value by doing so. Fourth, as president, I'd have the opportunity to formulate strategic initiatives to serve not only the association and its members, but also the profession at large. Finally, I did the math and realized my presidency would coincide with the ASA's 175th anniversary. What an opportunity!

I'll focus on the anniversary here, and I'll reserve future columns for topics such as finding value in the ASA and my strategic initiatives for 2014. The ASA, founded in 1839 in Boston (site of JSM 2014), is the second-oldest learned society in the United States. In case you're wondering, the oldest is the American Philosophical Society (APS). But because the APS is an honorary society whose members must be elected, I think the ASA can lay claim to being the oldest "open access" learned society in the United States.

In 2011, then president-elect Bob Rodriguez appointed a steering committee for the 175th anniversary, chaired by Christy Chuang-Stein. The committee has developed lots of great ideas and material, much of which is showcased on the 175th anniversary website (*www.amstat.org/asa175*), which will be updated and enhanced throughout the year. One of my favorite creations of the committee is Column 175 (*www.amstat.org/asa175/column175.cfm*), a monthly *Amstat News* feature that began in January 2012. The articles, authored by a variety of people in our field, discuss topics ranging from plans for the anniversary, to the history of the ASA, to the future of publishing, to personal career stories, to the future of our profession. I've found all of the columns informative and entertaining, and I encourage you to take a look at them.

The theme for the anniversary is "Celebrate our past, energize our future." To help celebrate our past, the steering committee is developing links to material covering the ASA's history, compiling a list of archives of work by past statistical greats, and presenting interesting historical facts about the association. Do you know who the first Fellows were? Who the first female president was? When the first

Nat Schenker



ASA President Nathaniel Schenker shows off a poster about the 175th anniversary on display at JSM 2013 in Montréal. (Photograph by Eric Sampson, ASA)

Let's take pride in the ASA's 175th anniversary, and let's work to strengthen our profession and association as we look forward to the 200th anniversary and beyond!

JASA article was published? Find the answers (*www.amstat.org/asa175/celebrateourpast.cfm*) and much more on the anniversary website.

With regard to energizing our future, the steering committee has identified the following three areas of focus, complete with code names, for forward-looking activities:

- **StatSharp** – Strengthening statistical education and raising awareness among young people that statistics is an attractive career choice
- **StatGrowth** – Expanding the size of our association and increasing its reach to emerging areas of statistical practice
- **StatImpact** – Communicating and broadening the positive impact of statistics on our world

Learn more (*http://bit.ly/198iFS5*) about initiatives in these important areas.

Speaking of the future, what will be the state of the world, or at least the ASA, in 2039, when the association reaches its 200th anniversary? Wish you could contribute a prediction or send a message to future members? You can, via the ASA Reverse Time Capsule (*www.amstat.org/asa175/timecapsule.cfm*), which will contain our present perspective on the future.

Back to the present! For this historic year, the person who immediately came to my mind for the ASA President's Invited Speaker at JSM was Stephen M. Stigler of The University of Chicago. Steve is a renowned statistical historian and researcher. He has many honors, which I'll have the pleasure of enumerating when I introduce him on Monday afternoon at JSM 2014. But one honor I should mention here is that he is an elected member of the APS, making him a member of the two oldest learned societies in the United States! Steve always gives thoughtful, scholarly, and entertaining presentations, and I'm very happy he accepted my invitation to speak.

Because the largest gathering of ASA members this year will be at JSM 2014, it is an obvious venue for celebrating the anniversary. Immediately after my presidential address on Tuesday evening, we'll enjoy a champagne toast, heavy hors d'oeuvres, dessert, and entertainment by talented statistician-performers. If you're interested in performing, submit an audition video (*www.amstat.org/asa175/talentshow.cfm*) by January 15.

But let's not only celebrate at JSM. The anniversary offers chapters, sections, committees, and other ASA groups an opportunity to plan new activities or to showcase and enhance existing ones. Please let the steering committee know your plans (*www.amstat.org/asa175/yourplans.cfm*) so they can be announced on the anniversary website. Individual members interested in participating in the committee's activities should contact Ron Wasserstein at *ron@amstat.org* or Christy Chuang-Stein at *christy.j.chuang-stein@pfizer.com*.

Let's take pride in the ASA's 175th anniversary, and let's work to strengthen our profession and association as we look forward to the 200th anniversary and beyond!

Nathaniel Schenker

Highlights of the August 2013 ASA Board of Directors Meeting

ASA President Marie Davidian led the board's final meeting of 2013 November 22–23 at ASA headquarters in Alexandria, Virginia. As usual, to assist with the transition to board service, incoming 2014 board members also joined the meeting as active (but non-voting) participants. Here are the highlights of the meeting:

- Keith Ord gave his final report as ASA treasurer, after five years of distinguished service to the board and association. He said the ASA is in good shape financially, but encouraged the board to continue to exercise due caution in the face of the reduction of some revenue sources. Davidian gratefully acknowledged Ord's wise guidance over the past five years and welcomed Ming-Xiu Hu, who will replace Ord, to the board.
- The board made minor changes to the ASA's investment guidelines to adjust to long-term changes in the real estate market. Ord reported that the ASA's investments have continued to do well when compared to benchmarks.
- The board hired Stanton Communications to serve as the association's public relations firm in 2014, to assist with the launch of a major campaign aimed at encouraging young people to consider careers in statistics. The campaign will be part of the ASA's 175th anniversary activities.
- Board members also met with a representative from Campbell and Company, a firm the ASA has engaged to help it improve its fundraising efforts. On a related note, Executive Director Ron Wasserstein reported to the board that the 2013 Annual Fund Drive was going to set yet another record. (Details will come in a future issue of *Amstat News*.)
- Speaking of fundraising, more than $36,000 has been raised for a Lingzi Lu Memorial Award, named in honor of the Boston University master's student in statistics who was killed in the Boston Marathon bombing. The award will provide support for a master's degree student or recent graduate to attend the annual ASA Conference on Statistical Practice.
- ASA member Sharon Lohr presented a draft version of an ASA statement on value-added modeling in education. She and her colleagues who prepared the draft received feedback from the board to be used in updating the draft, which will return to the board for review in the spring.
- ASA Director of Science Policy Steve Pierson discussed activities in Congress regarding Census Bureau surveys, including the American Community Survey.
- The board reviewed and offered comments on a draft statement prepared by the ASA-MAA Joint Committee on Undergraduate Statistics regarding the qualifications needed to teach introductory undergraduate courses in statistics. The board's Executive Committee will update the draft statement based on these comments and send them to the MAA for further consideration.
- The board heard a proposal from the Caucus on Women in Statistics and the ASA Committee on Women in Statistics to increase the number of women giving plenary addresses at JSM. The ASA will follow up on the proposal with other JSM societies.
- The formation of a new outreach group, the International Community of Russian-Speaking Statisticians, was approved.
- Publications Representative David Banks reported that the first issue of the ASA's new open-access journal, *Statistics and Public Policy*, is on track for release at the end of 2013.
- As it does each year, the board reviewed the ASA's Strategic Plan and the effectiveness of its implementation. Board members observed that the plan, now completing

2013 ASA Board of Directors

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Bob Rodriguez (Past-President)
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Nick Horton (2nd-year Council of Chapters Representative)
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David Banks (Publications Representative)
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2014 Board of Directors

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David Banks (Publications Representative)
Ming-Xiu Hu (Treasurer)
Ron Wasserstein (Executive Director)

its fifth full year of operation, has been extremely helpful in providing guidance to the board and staff and has led to many successes. The board also observed, however, that we need to grow much more effective in communicating and celebrating those successes.

- Speaking of the strategic plan, the board heard reports from all four groups working on 2014 strategic initiatives. All are making great progress. Details about these groups will be given in *Amstat News* in the coming months.
- The board approved minor changes to the policy and procedure associated with individual renewal of ASA accreditation after five years. In addition, the board approved the creation of a Graduate Statistician (GStat) status, which will serve as a means to mentor statisticians who ultimately intend to achieve Accredited Professional Statistician™ (PStat©) status.
- The councils of sections and chapters made their reports to the board. Among other activities, the Council of Sections Governing Board will conduct its biannual review of the allocation of invited sessions, and the Council of Chapters Governing Board is looking at broadening the reach of the traveling course program.
- The board heard the annual report of the Education Council, presented by Vice President Mary Mulry. These reports help the board stay connected with its network of committees, helping the organization be more efficient and make the best use of the volunteer time that is so critically important to the success of the ASA. Mulry reported on the successes and concerns of each of the entities represented by the council, as well as the council's plans for the future.

The board next meets April 4–5, 2014, at the ASA office in Alexandria. ■

Medical Devices and Diagnostics Newest ASA Section

One of the ASA's special interest groups became a section at the beginning of this year. SIGMEDD, the Statistical Interest Group for Medical Devices and Diagnostics, has officially become the Medical Devices and Diagnostics Section (MDD) of the American Statistical Association.

The common term "medical devices" incorporates many categorically different products: heart valves, pacemakers, artificial joints, maggots, laboratory tests for diagnostic medicine, and software for medical decisionmaking, to name just a few. Assessment of performance for such a heterogeneous group requires a wide spectrum of trial designs, such as Bayesian and adaptive methodologies. Many trials differ from the classical drug trial setting (e.g., randomization and masking often are not feasible). In addition, diagnostic tests have a unique set of challenges, and they have gained increased prominence due to the burgeoning interest in personalized medicine.

SIGMEDD was born when a group of statisticians in this large, fast-growing, and important field realized many of the statistical methods required to evaluate medical devices and diagnostics have not been fully developed. With the leadership of Greg Campbell, director of the Division of Biostatistics in FDA's Center for Devices and Radiological Health, SIGMEDD was officially founded in 2007 to bring these challenges to the attention of the entire statistics community.

As a special interest group, SIGMEDD had no ASA-recognized membership, dues, or many rights and privileges of sections. Despite this lack of formal status, it was highly involved in statistical forums, including JSM, the FDA-Industry Statistics Workshop, ENAR, and the FDA/AdvaMed meeting. It organized and presented numerous topic-contributed sessions in the areas of Bayesian statistics, adaptive designs, propensity scores, and other challenging issues in the conduct and analysis of medical device studies. Its members are at the forefront of developing and enhancing statistical design and analysis methodologies to address these challenges. Members of MDD will carry on these traditions and continue to work closely with the ASA's Biopharmaceutical Section in these endeavors. In addition, MDD's new status within the ASA will allow it to serve members interested in the areas of medical devices and diagnostics better than ever.

MDD members are looking forward to making new friends within the ASA to better serve the needs of the medical devices and diagnostics sectors of the medical practices. Visit *www.amstat.org/sections/sigmedd* to learn more. Also, consider joining MDD by checking the box for the Medical Devices and Diagnostics Section when renewing your ASA membership. ■

This month in ASA's history ... JANUARY

1840

The board applied for incorporation. On January 8, 1840, the nine members of the society—Sumner, Cogswell, Fisher, Chickering, Peabody, Web, Shattuck, Felt, and Simonds—voted that an application be made to the legislature for an act of incorporation and that said application be signed by all the present members. Felt was unable to officiate the meeting because of an inflamed eye, so Shattuck was appointed secretary *pro tempore.*

1941

The first issue of the *American Statistical Association Bulletin* was published. The subscription rate was $1 per annum or twenty-five cents per copy.

1974

The first issue of *Amstat News* is mailed to members. The newsletter was approved by the ASA Board to transfer the news departments that originally appeared in *The American Statistician.*

"The Committee on Publications wishes the membership to know that articles on computers in their relations to statistics are welcome in the association's journals."

1989

The ASA Founders Award is established. An ad hoc committee on service awards, chaired by Noel Bartlett, presented recommendations to the ASA Board during the December board meeting to recognize members who have rendered distinguished service to the association. No more than two awards would be granted annually, and the award does not have to be granted every year. Today, up to five awards may be given each year.

2008

The American Statistical Association was featured in the satirical newspaper *The Onion.* According to the humorous article, the association announced a groundbreaking new study was published in the *Journal of the American Statistical Association* that stated, "Somewhere on the planet, someone is totally doing it as this very moment."

2010

The ASA joins Facebook and Twitter.

Famous January Birthdays

Gertrude Cox, Sam Greenhouse, Jack Keifer, Oscar Kempthorne, Mollie Orshansky, Arnold Zellner

Will Your 2014 JSM Poster Have Statistical Significance?

Advance our industry and win cash in the SPA poster competition

Members of the Scientific and Public Affairs (SPA) Committee invite all 2014 JSM poster contributors to compete for a policy applications prize in its fourth Statistical Significance competition. A $250 prize will be awarded to the JSM poster that includes a Statistical Significance piece that describes the best contribution of statistics to society. (*Note:* Participation in this competition is only available to contributed poster authors who submit their poster abstract by the JSM deadline of February 3.)

What constitutes a Statistical Significance piece? Statistical Significance is a short, one-page illustration of the value of statistics to society within the context of the research problem dealt with in the poster submitted for JSM presentation. The objective is to illustrate to a lay person how the statistical solution to the problem presented in the poster would help form decisions that improve our society in specific areas such as health, agriculture, economy, education, manufacturing, and medicine. This specific piece should be clearly written to convey the beneficial role of statistics in a concise and unambiguous manner. The most effective Statistical Significance pieces are easy to develop, simple in exposition, enlightening, and fun to read. See *www.amstat.org/policy/statsig.cfm* for examples.

Participants in this Statistical Significance contest must include a one-page Statistical Significance piece along with their poster presentation at JSM. Both the scientific merit of the poster and the Statistical Significance piece will be judged for the competition. However, posters without the separate Statistical Significance page will be ineligible to win the competition, even if they participate in the competition.

A panel of judges appointed by the SPA committee will visit the posters at JSM and determine a winner on the morning of August 6. The winner will be notified immediately thereafter.

To enter, email your intention to compete to Vicky Pszonka on behalf of SPA members Susmita Datta and Daniel McCaffrey at *vpszonka@ets.org* when you submit the poster abstract (including your abstract number). Feel free to contact Datta or McCaffrey at *susmita.datta@louisville.edu* or *dmccaffrey@ets.org* if you have any questions. ■

The ASA Community Is Growing

Don't miss your opportunity to connect

The ASA Community, the members-only online network, has undergone a makeover. You will now see:

- **Updated Homepage** – We have simplified the community to make it easier for you to find what you need. Quickly navigate to your communities of interest, see the latest discussions and upcoming events, and read interesting member blogs. Check the community often for ASA announcements and the opportunity to connect instantly!
- **Your Profile** – Customize your personal profile by connecting directly with LinkedIn to import your information into the community.
- **Event Calendar and Event Manager** – Search for events by keyword.
- **Backend Enhancements** – Data-heavy pages, such as discussion thread lists, now load faster.

The ASA Community is available to all ASA members. Interact with members who share your statistical area of interest or are on the same career path as you are. Every ASA chapter, section, and committee has its very own community. Join discussions, see upcoming events, and keep up to date with all that is going on with an increasingly active and engaged ASA.

Get started today:

- Customize your profile and preferences
- Upload a photo and tell us about yourself
- Adjust your subscriptions
- Start a discussion

Connect today at *community.amstat.org* and help grow the ASA Community! Look for a general interest discussion group this year. We welcome your feedback; please send questions and suggestions to *Kalil@amstat.org*.

Trilobites and Us

Terry Speed

I recently attended the IYS 2013 workshop, "The Future of Statistical Science." The themes were familiar: what an excellent job statisticians are doing in many areas; what great potential we have for continuing and expanding this good work; and, finally, we need to change our ways, and if we don't, others will get to this new good work before we do and we'll be consigned to the dust bin of history.

The difference in 2013 is that the others are not computer scientists, machine learners, or data miners, but data scientists. Another difference is that some members of our profession think the threat is real this time and that perhaps the absorption of statistics into data science is the way we must go.

First, the excellent job we're doing. That was illustrated in the fields of genomics, cancer biology, the study of diet, the environment and climate, in risk and regulation, neuroimaging, confidentiality and privacy, and autism research. The talks on these topics were given by duos: a subject-matter specialist and a statistician.

It was an impressive testament to the power and value of our subject. If I were 50 years younger and beginning my career, I'd have been inspired by it all. However, many important application areas were *not* illustrated at the workshop, including social, agricultural, government, business, and industrial statistics. I took these omissions as a necessary consequence of the limited time available. But also, it seemed to me that inclusion in the program was a sign of being a non-traditional application area, one more likely to capture the imagination of the media representatives present and the funding agencies that will read the report about the workshop. After all, I think the workshop was for them, not us.

The break-out sessions explored our challenges. We learned that the community of statisticians has been guilty of the following:

a. Poor marketing, for not everyone who should know what we have to offer does know

b. Missed opportunities, with automatic translation, handwriting recognition, document and much image analysis being representative examples

c. Failing to emphasize that applied statistics is not performed in a vacuum and that our students should become immersed in at least one substantive subject-matter area

d. Insufficient emphasis on computing, in particular for dealing with the very large data sets becoming increasingly common

. . . [H]as there really been a fundamental shift around us, so that our old clumsy ways of adapting and evolving are no longer adequate?

e. Conservatism and rigidity, especially in relation to drug development

f. Generally poor teaching, particularly to large classes of non-specialists

g. Not delivering what Silicon Valley wants, which perhaps involves adopting a more engineering approach to our work

h. Failing to articulate our core to the world at large

Speed

Challenges indeed.

And yet, the number of students wanting to major in statistics is shooting up all around the world, and the demand for statisticians everywhere far outstrips the supply. Why the disconnect? Are we doing such a bad job that we need to rename ourselves data scientists to capture the imagination of future students, collaborators, or clients? Are we so lacking in confidence in ourselves, our colleagues, and our core discipline that we shiver in our shoes the moment a potential usurper appears on the scene? Or, has there really been a fundamental shift around us, so that our old clumsy ways of adapting and evolving are no longer adequate?

I see items a) through h) above—and the many others that could be added—as being like my school reports, which invariably said, "Can do better." Perhaps we might add "Must do better." Of course, we can and should do better. We need to adapt, to evolve, as we have been and will continue to do. Look at our history. We have to steer a path between the Scylla of complacency and sclerosis, of resting on our laurels, of reluctance to change, and the Charybdis of frantic change, of forgetting where we've come from and where we are going, of always trying to wear the latest fashion.

I see no evidence that the view of data science being promoted by its enthusiasts has any prospect of replacing our discipline in the diverse areas in which it has become central, many of which were named above. Google, Microsoft, Apple, Amazon, Walmart, the National Security Agency, the UK Government Communications Headquarters, and other organizations like them will surely present new and great challenges of a statistical nature, but that will never be more than a small part of what we can do. Furthermore, it is rather obvious that, as a profession, we are unlikely to provide enough qualified people to meet their needs, so others can and should move in to help them do what is needed.

I think we have a great tradition and a great future, both far longer than the concentration span of funding agencies, university faculties, and foundations—people who play zero-sum funding games across disciplines. We might miss out on the millions being lavished on data science right now, but that's no reason for us to stop trying to do the best we can at what we do best, something that is far wider and deeper than data science. As with mathematics more generally, we are in this business for the long term. Let's not lose our nerve.

In the year 2013, we celebrated the 300th anniversary of Bernoulli's *Ars conjectandi*, the 250th anniversary of Bayes' *Essay*, the 200th anniversary of Laplace's *Essai philosophique*, the 150th anniversary of Galton's mapping the weather, the 101st anniversary of Fisher's clarion call for maximum likelihood, and the 51st anniversary of Tukey's *The Future of Data Analysis.* Where are the Bernoullis, Bayes, Laplaces, Galtons, Fishers, and Tukeys of data science? Of course the answer is that *their* B, B, L, G, F, and T are *ours.* Must we give away the farm, or the family jewels?

Let's wait for 10 years and see who is still talking about Big Data and data science. The former can only be said once, and now it has been said. As for the latter, can it really be true that respected members of the statistics profession have entertained the idea of renaming their academic home department of data science? "What's in a name?" asked Shakespeare, to which I add, "Did any species ever avoid extinction by adopting a new name?" No, they adapted, they evolved, and so must we.

Of course, I might be wrong. Perhaps the last trilobite thought to herself at the end of the Palaeozoic age, "I tried to evolve, but things were changing too fast for me." But trilobites lasted for 300 million years and were on every continent on earth. I'd be happy with that for statistics. ■

Accreditation Survey Shines Light on Motives, Benefits

The American Statistical Association has offered accreditation to its members since fall of 2010. Although accreditation has been positively received by many members who have long argued for such a program, there have not been as many applications for accreditation as expected based on earlier expressions of interest. To learn more about why accredited members applied and why some who initially expressed interest did not apply, the ASA Accreditation Committee conducted a survey of all accredited members and a sample of non-accredited members in 2012.

At the time of the survey, there were 163 accredited members, all of whom were surveyed. In addition, 1,581 non-accredited members were surveyed. The non-accredited members surveyed included all who had expressed interest in seeking accreditation but had not applied, all members previously surveyed by the Kettenring Committee, and a random selection of other members. The response rate among accredited members was 65.6%, but was only 17.6% among non-accredited members.

The Kettenring Committee reviewed the proposed accreditation program for the ASA Board. They conducted a survey of 1,000 ASA members; 41% of the respondents to that survey indicated they would seek accreditation if offered.

Results for Non-Accredited Members

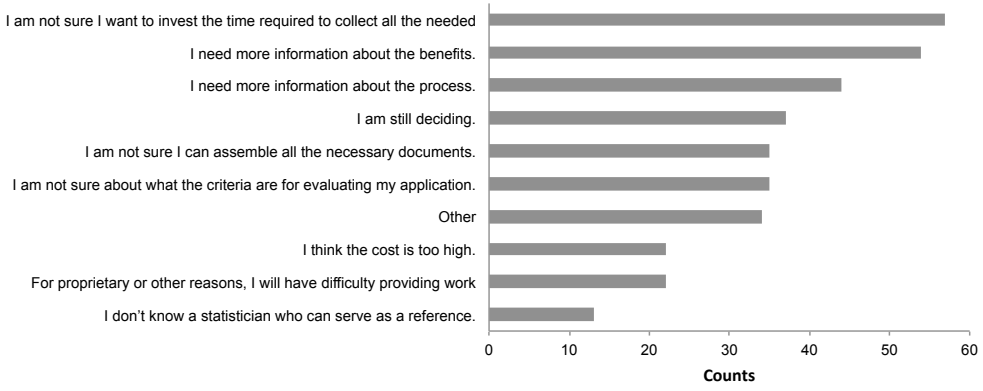
Non-accredited members were asked, "What obstacles have prevented you from applying?" They chose from a list of potential difficulties, costs, and information gaps and were instructed to check all that applied. If the response "other" was chosen, they were given the opportunity to provide a short narrative explanation. The results are displayed in Figure 1.

The most frequently selected reasons are about the time needed to collect the necessary information to complete the application and needing more information about the benefits and process.

Although the list of information needed appears formidable, an August 2013 *Amstat News* article by ASA Executive Director Ron Wasserstein, "ASA Accreditation: Everything You've Wanted to Know," addressed many of the information gaps and perceived obstacles. Wasserstein also included his telephone number and email address for anyone wishing for additional information or guidance.

Non-accredited members were then asked, "What benefits would make accreditation more attractive to you?" They were instructed to check all that applied from a list of potential benefits. If the response "other" was chosen, they were given the

Figure 1 - What obstacles have prevented you from applying?



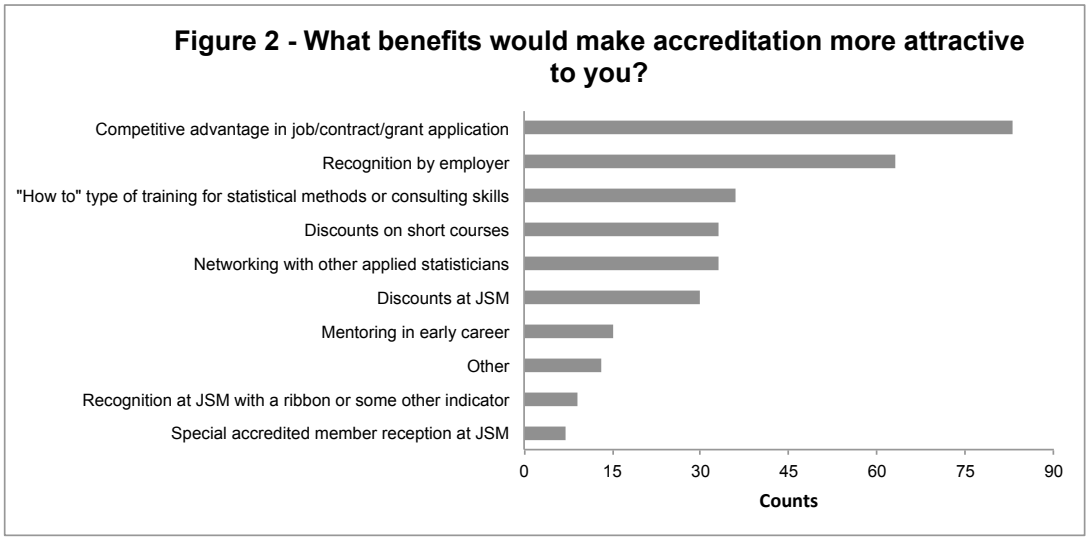


Figure 2 - What benefits would make accreditation more attractive to you?
Competitive advantage in job/contract/grant application
Recognition by employer
"How to" type of training for statistical methods or consulting skills
Discounts on short courses
Networking with other applied statisticians
Discounts at JSM
Mentoring in early career
Other
Recognition at JSM with a ribbon or some other indicator
Special accredited member reception at JSM
0
15
30
45
60
75
90
Counts

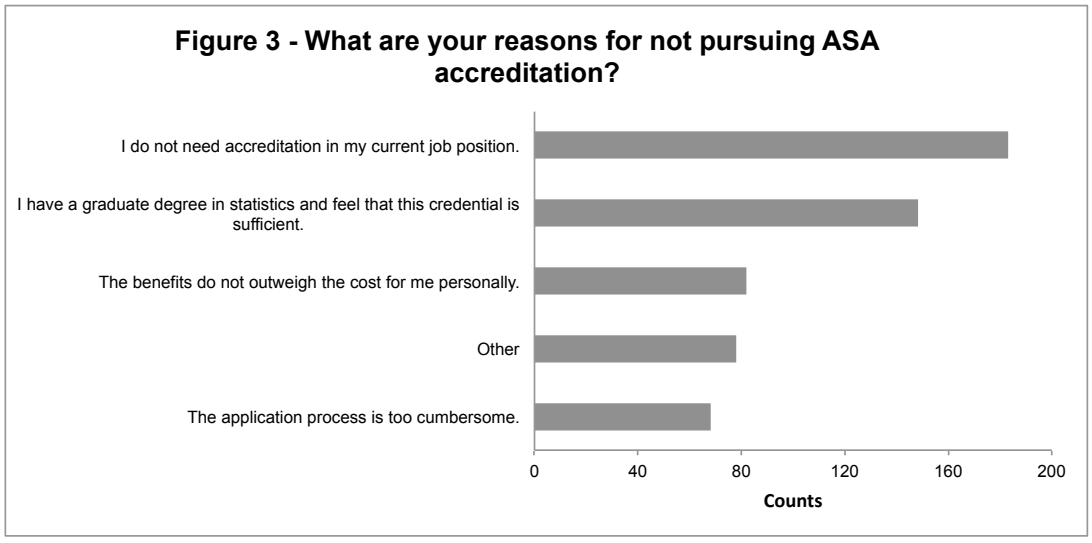


Figure 3 - What are your reasons for not pursuing ASA accreditation?
I do not need accreditation in my current job position.
I have a graduate degree in statistics and feel that this credential is sufficient.
The benefits do not outweigh the cost for me personally.
Other
The application process is too cumbersome.
0
40
80
120
160
200
Counts

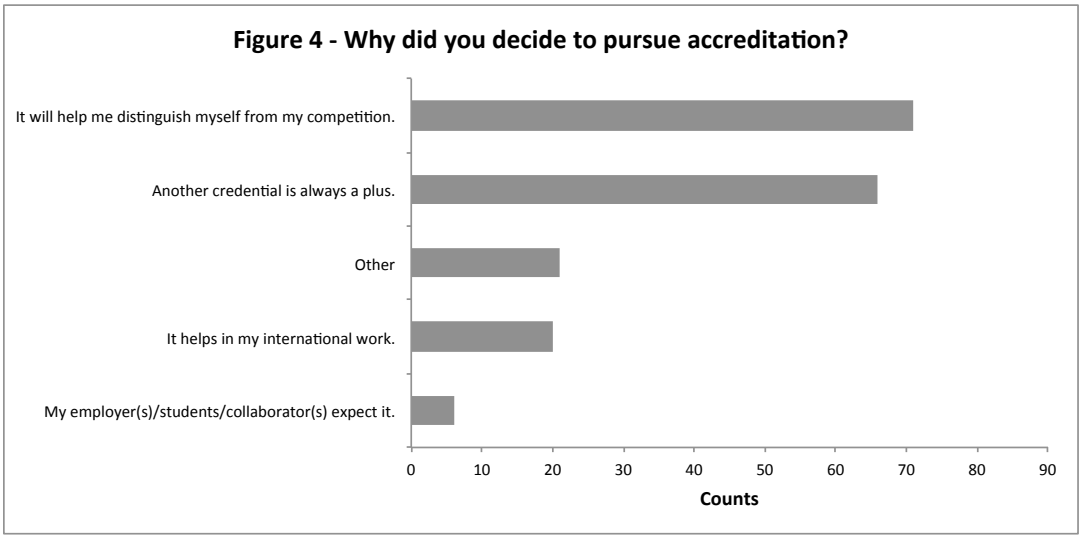


Figure 4 - Why did you decide to pursue accreditation?
It will help me distinguish myself from my competition.
Another credential is always a plus.
Other
It helps in my international work.
My employer(s)/students/collaborator(s) expect it.
0
10
20
30
40
50
60
70
80
90
Counts

opportunity to provide a short narrative explanation. Their responses are displayed in Figure 2.

Choices overwhelmingly favored recognition by employers and awarders of grants or contracts. Other choices were desirable, but more as "nice to have" benefits. The public recognition of accreditation as a valuable credential is difficult for the ASA to influence. Employers frequently cannot distinguish statisticians from other professionals, like economists. Accreditation can help make that distinction; however, until accreditation becomes widespread among those seeking non-academic employment or competing for grants or contracts where statistical knowledge and experience are needed, employers are not likely to include accreditation as a hiring criterion. Over time, as accreditation increases among statisticians, we should see increasing recognition of its value.

When asked whether they planned to pursue accreditation in the future, the majority of the non-accredited members who responded said no, 55.4%, although a substantial minority were either not sure or said they were going to do so, 44.6%. Those who responded no were asked their reasons for not pursuing accreditation; they were again asked to choose all that applied. Their responses are displayed in Figure 3.

The reasons given for not pursuing accreditation make sense. If it is not needed in the member's current position and existing credentials are sufficient, there is little benefit to the individual to become accredited. ASA accreditation is voluntary; it is not a requirement for participation in the statistical profession. As Sally Morton, a former ASA president, said in the announcement of the ASA accreditation program, "ASA accreditation is for those who feel it will help them professionally. As is demonstrated by similar programs offered by statistical societies in other countries, not everyone will need or want to be accredited."

Accreditation is not for everyone. However, it is a valuable credential for a subset of the members.

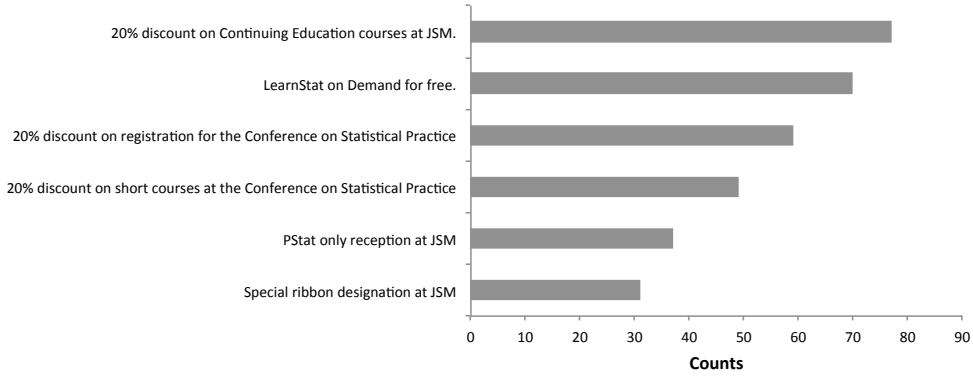
Results for Accredited Members

When asked whether they had or would recommend pursuit of accreditation to friends and colleagues, 93.5% of accredited members said yes. This level of satisfaction is evidence of the value of accreditation to a small but growing subset of ASA members.

Accredited members were asked why they decided to pursue accreditation. Their responses are displayed in Figure 4.

The most frequently chosen responses were accreditation will help distinguish accredited members from their competition and that another credential is a plus, suggesting that, even though there may not be an explicit demand by employers and those awarding contracts or grants, there is some level of perceived competitive advantage for accredited members.

Figure 5 - ASA announced several benefits for accredited members. Please select the three that will be most useful to you.



Accredited members receive tangible benefits provided by the ASA. Survey respondents were asked to choose the three most useful benefits provided. Their responses are displayed in Figure 5.

The top three choices are the discounts on continuing education courses at JSM, free LearnStat on Demand, and discounted registration at the Conference on Statistical Practice (CSP), followed by short course discounts at CSP.

The intangible benefits of accreditation were not addressed in this survey; however, one important intangible benefit is support for the profession of statistics. The work of the accredited professional statistician has been peer reviewed. He or she has agreed to adhere to a code of ethics and is keeping current in their statistical areas of expertise by taking short courses, attending the Joint Statistical Meetings and/or CSP, reading relevant articles and texts, submitting journal articles, or participating as journal editors and reviewers. These requirements of accredited members encourage the public to view statistics as a profession, not just a limited set of skills anyone who has taken a class in statistics or has access to the right software can use. ■

Academic Salary Survey

J. Lynn Palmer, ASA Director of Programs

Table 1. 2013–2014 Salaries of Academic Faculty in Statistics Departments by Type of Institution, Title, and Years in Rank, Based on 9-Month Salary

Institution Type	Title	Years in Rank	Count	1st Quartile	Median	3rd Quartile	90th Percentile
Research University	**Assistant Professor**	0–1	48	$ 80,500	$ 85,600	$ 88,400	$ 94,000
		2–3	34	$ 74,000	$ 82,600	$ 88,700	$ 95,700
		4–5	34	$ 80,000	$ 83,200	$ 93,500	$ 110,700
		6 +	9	$ 63,200	$ 75,000	$ 80,000	$ 103,200
	Associate Professor	0–1	42	$ 88,600	$ 92,000	$ 99,000	$ 106,600
		2–3	39	$ 87,100	$ 93,400	$ 105,000	$ 107,700
		4–6	30	$ 86,000	$ 96,900	$ 100,500	$ 111,400
		7–12	21	$ 76,600	$ 87,600	$ 100,400	$ 110,000
		13 +	19	$ 66,200	$ 79,500	$ 92,100	$ 107,800
	Professor	0–1	18	$ 93,700	$ 109,600	$ 150,000	$ 165,000
		2–3	19	$ 98,700	$ 110,000	$ 163,200	$ 172,600
		4–5	26	$ 103,100	$ 112,000	$ 136,600	$ 153,700
		6–7	21	$ 104,400	$ 123,100	$ 151,200	$ 164,700
		8–9	29	$ 111,100	$ 134,100	$ 170,300	$ 215,400
		10–12	32	$ 115,700	$ 132,300	$ 158,300	$ 172,000
		13–15	30	$ 105,700	$ 135,300	$ 164,300	$ 207,100
		16–20	30	$ 113,000	$ 130,800	$ 144,500	$ 193,800
		21–25	33	$ 116,000	$ 150,000	$ 182,200	$ 215,100
		26–30	20	$ 117,800	$ 141,800	$ 172,000	$ 204,400
		31 +	20	$ 132,800	$ 162,300	$ 229,800	$ 243,400
	Instructor	0+	37	$ 51,400	$ 57,000	$ 65,600	$ 70,000
	Other	0 +	35	$ 50,000	$ 65,500	$ 78,900	$ 92,000
College	**All**	0 +	11	$ 42,200	$72,200	$ 82,000	$ 115,900

Table 1 summarizes salary information for full-time academic faculty in statistics departments by type of institution, title (rank), and years in rank, based on a nine-month salary. Table 2 provides similar information for full-time academic faculty in biostatistics departments, but is based on a 12-month salary.

New tables in this series include Table 3, which focuses on academic faculty in math sciences departments and academic faculty in departments of medicine, including clinical science. Math sciences departments include mathematics and statistics, mathematics, and statistics and computer sciences.

There were 170 requests sent to complete this survey with some duplicates at institutions. Information was received from 76 institutions with information about 1,189 academic faculty members. A report including information about gender distributions for academic faculty and information about non-faculty (who are not included in this report) will be provided in a future issue of *Amstat News*.

Table 2. 2013–2014 Salaries of Academic Faculty in Biostatistics Departments by Type of Institution, Title, and Years in Rank, Based on 12-Month Salary

Institution Type	Title	Years in Rank	Count	1st Quartile	Median	3rd Quartile	90th Percentile
Research University	**Assistant Professor**	0–1	27	$ 95,000	$ 102,200	$ 117,700	$ 122,000
		2–3	31	$ 92,800	$ 104,000	$ 119,000	$ 125,000
		4–5	25	$ 98,300	$ 105,100	$ 118,900	$ 127,300
		6 +	21	$ 90,200	$ 108,300	$ 120,000	$ 121,500
	Associate Professor	0–1	25	$ 116,000	$ 124,700	$ 145,200	$ 151,300
		2–3	39	$ 118,200	$ 129,400	$ 149,400	$ 160,000
		4–6	26	$ 117,600	$ 131,000	$ 149,200	$ 157,800
		7+	20	$ 117,200	$ 129,700	$ 152,600	$ 168,200
	Professor	0–1	22	$ 153,200	$ 169,900	$ 180,000	$ 212,000
		2–4	21	$ 147,100	$ 175,300	$ 197,600	$ 246,400
		5–7	28	$ 159,300	$ 193,400	$ 219,400	$ 250,000
		8–10	20	$ 193,000	$ 235,100	$ 269,900	$ 286,500
		11–15	20	$ 167,500	$ 207,700	$ 227,700	$ 276,800
		16 +	28	$ 174,700	$ 207,900	$ 259,600	$ 317,500
	Instructor	0+	6	$ 90,500	$ 97,500	$ 101,000	$ 105,700
	Other	0 +	27	$ 89,400	$ 109,300	$ 119,600	$ 129,700
College	**All**	0 +	27	$ 105,000	$ 146,800	$ 199,200	$ 266,400
	Asst. Prof.	0+	4		$ 105,300		
	Assoc. Prof.	0 +	6		$ 141,400		
	Professor	0 +	13	$ 171,600	$ 199,200	$ 250,200	$ 273,300
	Instructor	0+	4		$ 89,800		

Table 3. 2013–2014 Salaries of Academic Faculty in Math Sciences Departments by Type of Institution, Title, and Years in Rank, Based on 9-Month Salary

Institution Type	Title	Years in Rank	Count	1st Quartile	Median	3rd Quartile	90th Percentile
Research University	**Assistant Professor**	0+	20	$ 64, 400	$ 72,800	$ 76,500	$ 80,000
	Associate Professor	0+	26	$ 70,000	$ 80,200	$ 84,600	$ 92,000
	Professor	0+	26	$ 80,600	$ 95,200	$ 108,700	$ 130,000
	Instructor	0+	5		$43,700		
College	**All**	0 +	17	$ 69,000	$78,200	$ 93,200	$ 114,000
	Asst. Prof.	0+	4		$ 63,700		
	Assoc. Prof.	0+	5		$ 82,100		
	Professor	0+	8		$ 95, 900		

Table 4. 2013–2014 Salaries of Academic Faculty in Departments of Medicine in Research Universities, by Title and Years in Rank, Based on 12-Month Salary

Institution Type	Title	Years in Rank	Count	1st Quartile	Median	3rd Quartile	90th Percentile
Research University	**All**	0+	24	$ 97,000	$ 115,700	$ 151, 500	$ 177,400
	Asst. Prof.	0+	11	$ 92,700	$ 97,400	$101,800	$105,000
	Assoc. Prof.	0+	5		$ 136,100		
	Professor	0+	7		$ 159,100		
	Other	0+	1				

NC State Statistics Department Helps Land $60 Million NSA Grant

The National Security Agency (NSA) and North Carolina State University announced in August a $60 million partnership to create the Laboratory for Analytic Sciences (LAS), the largest sponsored research contract in the university's history.

The university's statistics department is an important part of the reason NC State succeeded in the highly competitive selection process, along with its strengths in data analytics, computer science, social science, and mathematics and its proximity to and connections with national industry leaders, according to the press release.

Randy Avent, principal investigator for LAS and associate vice chancellor for research development at NC State said, "The statistics component of our proposal was integral to its success. Our statistics colleagues bring to the table advanced statistical techniques and will also be developing the new methodologies necessary to be successful in the Big Data era."

Located on the university's campus near Research Triangle Park, the laboratory will be a cornerstone of the emerging advanced data innovation hub at NC State, bringing together some of the brightest minds from government, academia, and industry to collaborate on the most challenging Big Data problems.

The NC State Department of Statistics is among the nation's oldest and was founded by renowned statistician and ASA Past President Gertrude Cox in 1941.

Researchers from this department, as well as dozens of others across campus, will collaborate with government scientists from NSA's research and intelligence directorates. Applying scientific methodologies to the analytic environment will enable the LAS to offer a fresh perspective on the future of analysis. By analyzing mission problems in a way that starts with the science base, the LAS will develop breakthrough capabilities and be uniquely positioned to harness the power of academic and commercial advances.

"The LAS is founded on the principles of collaboration and innovation, as evidenced by our choice of location, our multidisciplinary staff, and our approach to problemsolving," said LAS director, J. David Harris. "Research at the LAS will build upon existing analysis and analytics solutions, rethinking the enormous challenges and opportunities that are emerging as a result of Big Data."

Michael Wertheimer, NSA director of research, described the broad objective of the partnership with NC State by saying, "By immersing intelligence analysts with NC State's diverse group of scientists, we hope to discover new and powerful ways to meet our foreign signals intelligence and information assurance missions, giving us an edge to better protect the nation."

Alyson Wilson, who joined the NC State Department of Statistics to work with LAS, said statisticians from across the Research Triangle area will work with interdisciplinary teams of researchers on the initiative's three primary research focuses:

- Understanding the analytic workflow
- Developing the science of analytics
- Improving the analyst experience at the intersection of technology and tradecraft

"The success of the university's proposal to lead the Laboratory for Analytic Sciences is another indication that proposals on scientific research projects, especially those focused on Big Data, on which statisticians are co-investigators, are much more competitive than those without," said 2013 ASA President Marie Davidian, who also is William Neal Reynolds Professor of Statistics at NC State. "We're seeing this emerging trend over and over again in numerous scientific fields ranging from astrostatistics to biomedical research to forensic science. The NC State-NSA partnership validates that statistics in fact does make the science better."

Projects undertaken at the LAS will help NSA meet this ongoing challenge while also producing analytic techniques that will drive future commercial and academic endeavors.

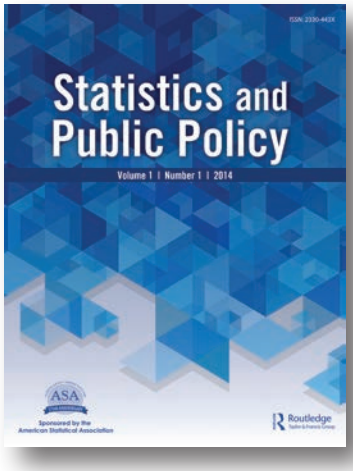
Applying scientific methodologies to the analytic environment will enable the LAS to offer a fresh perspective on the future of analysis. By analyzing mission problems in a way that starts with the science base, the LAS will develop breakthrough capabilities and be uniquely positioned to harness the power of academic and commercial advances.

For details, visit *http://bit.ly/18QLIXL*. ■

Abstracts Sought for Conference on Mathematics in Finance

The fifth International Conference on Mathematics in Finance will take place August 24–29 in Skukuza, Kruger National Park, South Africa. The goal of the conference is to bring together academics, practitioners, and graduate students working in financial mathematics, risk analytics, and business analytics. The deadline for submitting abstracts is March 31; the deadline for registering is April 30. Note that the number of participants is limited to 150. For more information, visit *www.nwu.ac.za/content/mif-2014-landing-page*.

ASA Launches New, Free Journal



The new ASA-sponsored journal *Statistics and Public Policy* (*SPP*) published its inaugural issue late last month. The issue contains the following six articles:

"The Twentieth-Century Reversal: How Did the Republican States Switch to the Democrats and Vice Versa?" by Andrew Gelman of Columbia University

"How Informative Are Vital Registration Data for Estimating Maternal Mortality? A Bayesian Analysis of WHO Adjustment Data and Parameters" by Fengqing Chao and Leontine Alkema, both of the National University of Singapore

"The Sensitivity of Value-Added Estimates to Specification Adjustments: Evidence from School- and Teacher-Level Models in Missouri" by Mark Ehlert of the Economic and Policy Analysis Research Center, Cory Koedel of the University of Missouri, Eric Parsons of the Economic and Policy Analysis Research Center, and Michael J. Podgursky of the University of Missouri

"Does the Model Matter? Exploring the Relationship Between Different Student Achievement-Based Teacher Assessment" by Dan Goldhaber of the University of Washington Bothell, Joe Walch of the University of Washington Bothell, and Brian Gabele of the Seattle Public School System

"Weight Calculations for Panel Surveys with Sub-Sampling and Split-Off Tracking" by Kristen Himelein of the World Bank (this paper describes a household panel survey design used in Sub-Saharan Africa as part of a Bill and Melinda Gates Foundation project)

"The Statistical Role in Voter Identification (ID) Laws" by David Marker of Westat (this paper summarizes statistical issues in a court case between the State of Texas and the U.S. Federal Government regarding recent state legislation)

The breadth of these articles and diverse backgrounds of the authors illustrates the scope to which this new journal aspires.

Because the ASA leadership thinks statistics has an essential role in public policy, it has decided to provide this journal for free to everyone in the hope that it will promote science-based policy and demonstrate the ASA's advocacy for our profession as a critical contributor to local, state, federal, national, and international decisionmaking.

This first issue can be accessed at *www.tandfonline.com/uspp*.

SPP is entirely electronic and aims to publish articles that (1) apply good statistical practice to data sets that may inform the public and decisionmakers about matters of policy and (2) discuss statistical issues associated with evidence-based public policy and planning. *SPP* has no requirement for methodological novelty. Interested authors can submit papers at *http://mc.manuscriptcentral.com/amstat* (select *Statistics and Public Policy* from the drop-down menu). ■

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The ASA in Their Words

Ron Wasserstein, ASA Executive Director

The celebration of the ASA's 175th anniversary is under way! To help us launch this yearlong celebration, members of the 175th Anniversary Steering Committee thought it fitting to look to some of the societies that have been partners with the ASA throughout some of its ventures. After all, these organizations have played and continue to play a key role in the success of the ASA. We asked them to say a few words about the ASA and its relationship to their respective organizations in light of this important milestone for our association.

We turn first to the societies with whom we have collaborated for many years on the Joint Statistical Meetings.

Dan Heitjan, 2013 president of the **Eastern North America Region (ENAR) of the International Biometric Society**, reflected on the impact of the ASA-ENAR partnership. "ENAR's partnership with ASA is so transparent that I often find myself having to remind people that we are not the same organization," Dan wrote. "This is a good thing, because the point of our relationship is to create a greater statistical profession—a community of scientists united by a common interest in the efficient collection and honest interpretation of data. Our jointly organized meetings—ENAR each spring and JSM each summer—are only the most visible symbols of that relationship. On behalf of ENAR and all its members, I congratulate ASA on its 175th anniversary, and wish it many more."

On the other side of the country, Brad Biggerstaff, 2013 WNAR president, noted, "A close and collaborative tie between the ASA and the **Western North American Region of the International Biometric Society** greatly benefits WNAR/IBS, many of whose members are also ASA members. The JSMs are the most obvious collaboration directly benefitting members of both societies, while a lasting and important collaboration between the IBS and ASA is the joint publication of *JABES*, providing members working in these areas of application an internationally recognized, top-flight journal. The COPSS awards recognize the accomplishments of the brightest of our discipline, and the WNAR membership cherishes its voice in making these selections."

Michael Evans, **Statistical Society of Canada** (SSC) president, offered the following: "The SSC is proud of its association with the American Statistical Association. There is no question that the SSC has benefited immensely from its close relationship with the world's leading professional statistical association. We consider the ASA as a standard that we try to emulate in serving our members and developing the profession of statistics in Canada.

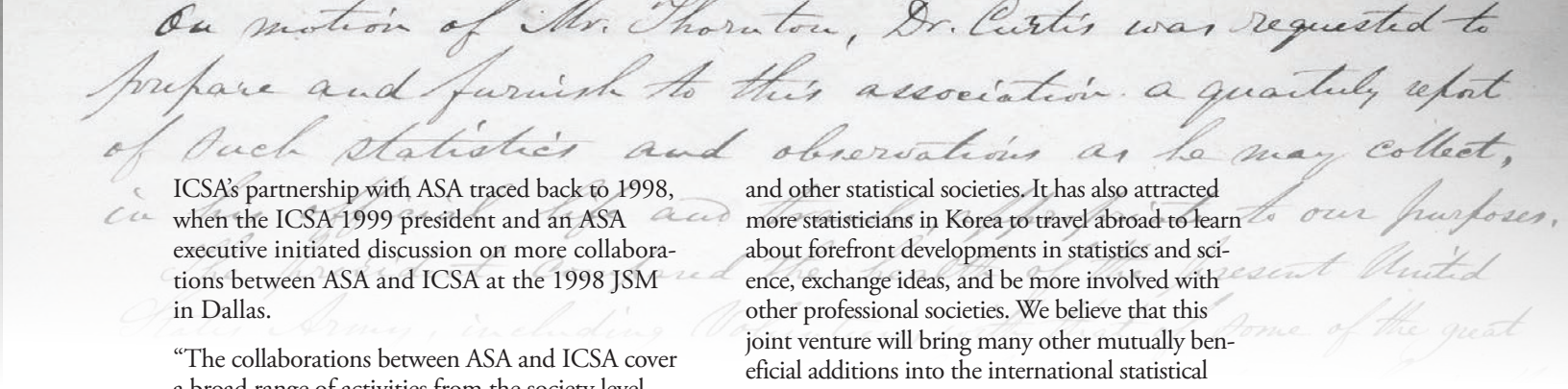
"The SSC began its operations in 1977, and so we are quite young by comparison. Our relatively short history has been marked by many cooperative efforts with the ASA, most notably the Joint Statistical Meetings and the Committee of Presidents of Statistical Societies. These partnerships add significance to the SSC as the primary professional statistical organization in Canada.

"On a personal level, the ASA has always impressed me as an inclusive organization genuinely concerned with the advancement of statistics and the professional development of its members. The SSC congratulates the ASA on its very successful first 175 years. We look forward to the continuing leadership of the ASA and our joint work!"

Bin Yu, president of the **Institute of Mathematical Statistics** (IMS), wrote, "IMS would like to warmly congratulate ASA for its 175 years of excellent professional organization and service to the statistics community. IMS is pleased to have successfully partnered with ASA on many important endeavors of IMS, such as JSM, COPSS awards and committees, *Journal of Computational and Graphical Statistics*, Spring Research Conference on Statistics, Current Index to Statistics, and statistics surveys. It is exciting to add to this long list of collaborations a new and significant project: the International Prize in Statistics Foundation." (Editor's note: *Amstat News* will carry more information about this in a future issue.)

Several other societies have recently joined as JSM special partners and work with the ASA on other collaborations, as well. Some of them sent along birthday greetings:

Ming-Hui Chen, president of the **International Chinese Statistical Association** (ICSA), observed: "ASA is one of the oldest and leading statistical societies in the world, and the ICSA has been growing rapidly over recent years, with a large overlap in membership with the ASA. ICSA was officially founded at the 1987 Joint Statistical Meetings (JSM) in San Francisco, California.



ICSA's partnership with ASA traced back to 1998, when the ICSA 1999 president and an ASA executive initiated discussion on more collaborations between ASA and ICSA at the 1998 JSM in Dallas.

"The collaborations between ASA and ICSA cover a broad range of activities from the society level to ASA sections and local chapters, including the partnership for the annual JSM with designated ICSA invited sessions, ICSA's support to various COPSS activities, and ASA's co-sponsorship of ICSA's International Statistical Conferences and Applied Statistics Symposiums. ASA officers, including presidents and executive directors, have attended and frequently delivered keynote lectures at ICSA events. Over the years, both societies have benefited from the successful partnership. Most recently, ASA and ICSA have jointly and timely established the Lingzi Lu Memorial Award, which is the first of its kind to honor a master's-level applied statistician."

Cyrus Mehta, president of the **International Indian Statistical Association** (IISA), said his organization has received considerable support from the ASA. He noted the ASA's leadership in helping the IISA become a JSM special partner and an important contributor to the scientific program at JSM. Mehta also said: "ASA helps us in other ways as well, including placement of important IISA announcements in *Amstat News* and on STAT*tr@k*, co-sponsoring IISA conferences, and providing valuable financial support to enable students and young researchers to attend these conferences. In turn, the ASA benefits from its association with IISA by receiving assistance in its mission of outreach to developing countries. We have supported the Future of the Statistical Sciences Workshop, the capstone event for the International Year of Statistics, through promotion in our newsletter and through a financial contribution. We congratulate the ASA as it celebrates its 175th anniversary and are happy to be part of the celebration."

The president of the **Korean International Statistical Society** (KISS), Dongseok Choi, wrote: "Congratulations on the ASA's 175th anniversary! The Korean International Statistical Society is very excited to celebrate such a significant year together. KISS was founded in 2010 and became a special partner of the Joint Statistical Meetings in 2013. Participating in JSM is of upmost priority and importance to the KISS, since it has greatly enhanced its interactions with the ASA and other statistical societies. Such a partnership enhances the scientific content of JSM, helps generate new ideas, and fosters collaborations between the KISS and other statistical societies. It has also attracted more statisticians in Korea to travel abroad to learn about forefront developments in statistics and science, exchange ideas, and be more involved with other professional societies. We believe that this joint venture will bring many other mutually beneficial additions into the international statistical community in coming years. We look forward to celebrating the ASA's 175th anniversary together in 2014!"

The ASA is not the oldest statistical society in the world. In 2014, the Royal Statistical Society (RSS) will celebrate its 180th anniversary and also become a special JSM partner. RSS President John Pullinger wrote, "The ASA and the RSS have a great deal in common. The International Year of Statistics in 2013 has helped grow our relationship to the benefit of the profession of statistics and the discipline of statistics. As the ASA starts its 175th anniversary year, it is timely to look back at what our founders were thinking. Their thoughts were all about how statistics can be used to help make the world a better place. In our new data economies, those that get stats will get on; those that do not will get left behind. Through the International Year of Statistics, the ASA, the RSS, and professional and learned societies for statistics around the world have rediscovered our roots and are showing the world how we make an impact. By sharing ideas, energy, and commitment, we can only grow stronger."

To top off these anniversary reflections, we go to Vijay Nair, president of the **International Statistical Institute** (ISI), who wrote: "On behalf of ISI members from around the globe, I am pleased to extend our congratulations to the ASA on the occasion of its 175th birthday! Our collaboration on the International Year of Statistics, joint with other statistical societies, has been a resounding success. One of the ISI's recent thrusts is statistical capacity building, which includes bridging the developing and developed worlds of statistics. I hope that the ASA and its 18,000 members can partner with the ISI and sister statistical organizations in this endeavor. (Please see the ISI website at *isi-web.org* for information about capacity building activities.) Over the years, the ASA has played a huge role in promoting the profession and the careers of statisticians. ASA members can be very proud of its accomplishments, even as we ponder where our profession will be in another 175 years!"

The ASA is grateful to these partners and other societies and organizations with which we collaborate. We all share the conviction that sound practice of statistics leads to better informed decisions and improved human welfare. Thanks in no small part to the contributions of these partners, the ASA continues its 175-year journey to promote the practice and profession of statistics. ■

MASTER'S NOTEBOOK

Increasing the Visibility of the Statistics Profession

Sharon Murray of GlaxoSmithKline, Amarjot Kaur of Merck Research Laboratories, and Jennifer Gauvin of GlaxoSmithKline

The visibility of statisticians and statistics as a profession was an important part of this year's theme for JSM: "Celebrating the International Year of Statistics." The purpose of this article is to share some of the ideas for increasing visibility that arose during a panel discussion organized by the members of the Committee on Applied Statisticians titled "Diverse Applications of Statistics: Are We Doing Enough in Creating Visibility?"

Panelists included Bob Rodriguez, senior director of R&D at SAS; Amit Bhattacharyya, senior director of quantitative sciences at GlaxoSmithKline; Jim Rosenberger, former department chair and current director of the online master's of applied statistics program at Penn State University; and Roger Lewis, a physician and chair of the department of emergency medicine at Harbor-UCLA Medical Center and senior medical scientist for Berry Consultants.

Panelists came from both academia and industry and brought the ASA perspective to the discussion, as well. Bob is the past president of the ASA, Jim is a vice president of the ASA, and Amit is the current chair of the Biopharmaceutical Section of the ASA. Roger added the perspective of a physician who is heavily involved in clinical trial research—adaptive clinical trials in particular—and often interacts with applied statisticians. Audience members were invited to participate toward the end of the session, and this part of the discussion was lively, especially considering it took place during the last session of JSM!

The discussion focused on four key questions:

- How has the application of statistics played a critical role in innovation, affected research advances, and shaped policy?
- What is the impact of statistical application in interdisciplinary collaboration and decision-making?
- Considering the many ways in which the field of statistics contributes value in our society, why is our profession not more visible to the media and the general public?
- What more can *you* do as a statistician to increase positive visibility for our discipline?

In response to Question 1, key examples cited were the use of statistical modeling in business to improve operational performance and understanding of customers, the role innovative designs have played in the drug development paradigm in getting new medicines to market quickly, and the role of statistics in bioinformatics and genomics research. In addition, Roger mentioned the effect that statistics has had on shaping policies for patient-centered research, and Jim commented that statisticians have even designed experiments to test the effect of various public policies on outcomes.

In response to Question 2, the panel provided several examples of important contributions to collaborative work by statisticians. For example, statisticians and physicians must work together to design efficient clinical trials, particularly those with adaptive or Bayesian features. Computer scientists and statisticians are working together to design software for fraud detection, and bioinformatics work requires extensive collaboration between statisticians, computer scientists, and biologists. It also was noted that statisticians could help with decisionmaking in the courtroom by providing expert testimony.

In response to Question 3, the panel observed that statisticians and journalists are trained to think differently. Statisticians are trained to state all assumptions and discuss various options. They may provide more than one interpretation for data and tend to emphasize the complexity of the analysis, rather than the results. In contrast, journalists are trained to provide concise summaries and highlight key points. One way for statisticians to increase their visibility is to obtain training in how to talk with the media. Think of developing an "elevator speech" to describe a study design and/or observed results in a way that can be understood by the general public in the time it takes to ride an elevator from the first to the fourth floor.

A positive trend is that the field of statistics has gained visibility as the number of high-school students taking AP Statistics has increased year after year (*http://magazine.amstat.org/blog/2012/09/01/prescolumnsept2012*). In turn, this growth has led to a recent dramatic increase

in the number of university students who are now majoring in statistics (*http://magazine.amstat.org/blog/2013/10/01/undergrad-women*). Members of the ASA can contribute by calling their local high school and volunteering to talk to AP Statistics classes about their work. Amit said the Biopharmaceutical Section has been developing a website for students to increase visibility of statistics as a successful career option (*www.biostat-pharma.com/home.htm?page=welcome*), which is still being enhanced.

The exposure to statistics that many high-school students are getting now also will lead to greater statistical literacy among the people with whom statisticians collaborate in the future. Similarly, Jim talked about the large amount of interest that the professional master's of applied statistics program at Penn State has received. He attributes this to the recognition that statistical skills are valued in the workplace. In addition, the book *Moneyball* inadvertently raised the level of visibility of the profession.

In response to Question 4, Bob pointed out that a 2012 ASA initiative led to the development of training in effective presentation skills for statisticians. It is taught by ASA volunteers and available to local groups of ASA members, such as chapters. For more information, visit *www.amstat.org/careers/csfi/courses.cfm*. Members can contact Rick Peterson at *rick@amstat.org* to find out if a trainer is available to deliver the course in their area.

In summary, the declaration of 2013 as the International Year of Statistics provided the perfect jumping-off point for increasing the visibility of statistics as a profession and showing the value of the field of statistics in our society. Many excellent ideas were provided by panelists and audience members as to how this may be achieved on both national and local levels.

An interesting example of increasing the visibility of statistics on a local level came from an audience member who told a story about something that happened to her when she took a job at a manufacturing plant. She met with a manager in manufacturing on her first day who indicated he was not interested in statistics and asked her to go away and not waste his time. She went away and spent some time thinking about what she could do. After two weeks, she went to the manager and explained she had a plan for using statistics to help him save up to $2 million per year. Guess what? He suddenly became very interested in statistics and the collaboration between the statistician and manager did lead to saving the company a considerable amount of money. ■

STAT*tr@k*

A Career in Survey Statistics?

Randy ZuWallack

How likely are you to pursue a career in survey statistics? Would you say …

a. Very likely

b. Somewhat likely

c. Not very likely

d. Not at all likely

Wait, before you answer this question, let me tell you a little bit about survey statistics.

In the context of survey research, a "survey" is the process of collecting information about members of a population. Usually, a survey is conducted with a *sample* of the population, rather than with a census (all members of the population.) *Survey administration* refers to the methods and operations used to collect the information from the sampled members. We collect information about each individual member (usually a person) in the sample using a *questionnaire*, or the survey instrument. The collective data from the questionnaires are used to calculate survey statistics. A survey statistician may have a role in selecting the sample, developing the questionnaire, designing the methods and operations for administering the survey, calculating statistics, or any combination of these.

Now that we got that out of the way, let's find out if survey statistics is the right career for you. Please check the number that best represents how you feel about these statements about a career …

	Strongly Agree				Strongly Disagree
I like to solve "puzzles"	5	4	3	2	1
I enjoy working on a multidisciplinary team	5	4	3	2	1
I enjoy learning new things	5	4	3	2	1
I enjoy innovating new ideas	5	4	3	2	1
I revel in the opportunity to apply my skills to exciting real-world applications	5	4	3	2	1

OK, that's it for the survey questions! But seriously, these are the things I most enjoy about working in survey statistics, so let me tell you what I mean.

Solving 'Puzzles'

I like to describe survey research simply—asking the right questions to the right people. It sounds easy, but there are many pieces that need to come together to execute a survey.

Right questions—what measurements (e.g., attitudes, behaviors, knowledge) do we need? How do we ask the questions in an unbiased manner? How do we structure these questions into a cohesive survey?

Right people—who's the target population? How can we select a sample that represents this population? What sample size? How do we contact those selected, and how do we get them to respond to our survey?

The decisions we make above are usually constrained by budget and schedule. A survey statistician helps put these pieces together to solve the "puzzle"—finding the most efficient way to ask the right questions to the right people (within budget and on time). It's not necessarily easy, but it can be fun!

Multidisciplinary Teams

Survey research draws on many fields of study—statistics, cognitive psychology, sociology, computer science, and project management. A survey statistician will work on a team with experts in these fields. As the statistician, the team will look to you for technical expertise (e.g., sample size, power analysis) and also as the authority on sampling validity—is the sampling approach right for the target population?

Learning New Things

Survey research is applied in any number of domains, such as public health, transportation, labor studies, finance, social program evaluation, environmental studies, marketing and product development, wildlife management—the list goes on. As a survey statistician, I am exposed to these areas of research so not only do I learn more about survey statistics, I also get to learn about many other interesting areas of study.

Innovating New Ideas

Survey statisticians explore new methods and technologies to improve data quality and/or reduce cost. We are constantly looking for ways to do things better, faster, cheaper—and we always champion data quality. Our innovations often are spurred by world changes that force us to adapt. New technologies mean new opportunities for alternative ways to reach our target population. Constant change means our profession never goes stale and we are allowed to explore our creative side.

Exciting Real-World Applications

One of my favorite things about being a survey statistician is that my work makes a tangible difference. Smart decisions are supported by good data. We help get that good data. Consider these examples:

- *Labor:* An employee and employer perspective of the Family and Medical Leave Act (FMLA), including awareness of benefits, experience taking leave and eligibility, *www.dol.gov/whd/fmla/survey*, sponsored by Department of Labor
- *Traffic Safety:* A survey to assess the behaviors, attitudes, and perceptions about distracted driving; knowledge of laws; and effectiveness of prevention programs, *www.nhtsa.gov/staticfiles/nti/pdf/811729.pdf*, sponsored by National Highway Traffic and Safety Agency
- *Environment:* A combination of surveys to measure the number of salt-water anglers, number of fishing trips, and details on their catch, *www.st.nmfs.noaa.gov/recreational-fisheries/in-depth/how-anglers-sampled/index*, sponsored by National Oceanic and Atmospheric Administration
- *Current events:* Polls that measure public opinion on national politics, the economy, popular trends, current events, and more—there are many, such as the ABC News/*Washington Post* poll, *http://abcnews.go.com/blogs/politics/polls* and *www.washingtonpost.com/politics/polling*

There is any number of examples in which survey data are used to make a difference. To me, there is nothing more exciting than seeing your work used for good!

So now that I've told you what I like about being a survey statistician, let me ask that first question again—how likely are you to pursue a career in survey statistics? Would you say …

a. Very likely

b. Somewhat likely

c. Not very likely

d. Not at all likely

That's great! I'm so glad you are all interested. Now, you might ask (as survey statisticians are prone to do) how you should prepare for a career in survey statistics. Here's my recommendation:

- *Coursework:* Of course, math and stats will help prepare you for a career as a survey statistician. But don't forget, survey research is multidisciplinary. Consider taking courses in human behavior (check psychology, sociology, anthropology courses). One of the major challenges to survey research is getting people to respond to surveys. Understanding the cognitive and social constructs that influence behavior allows us to develop methods to maximize response to our questions.
- *Sampling Theory*: If your college offers sampling theory, take it! It's the foundation of everything you'll need to know about selecting efficient and valid samples. If your current college doesn't offer it, plan to take it postgrad.
- *Statistical Programming:* Proficiency in one or more statistical packages will most likely be a required skill listed in job postings. Popular software packages include SAS, SPSS, STATA, and R. Learning skills in one or more of these packages will allow you to contribute on your first day.
- *Communication Skills*: You'll be a very popular survey statistician if you can convey complex concepts in simple and clear language. If your college offers one, take a technical writing course. And practice in your everyday communications (e.g., emails, homework assignments). Think about *whom* you are communicating with and *what* information is important.

Some universities offer degree programs in survey methodology and will cover most or all of these areas. See *www.amstat.org/sections/srms/college.html* for a list.

I hope I've provided you with enough information for you to want to find out more about a career as a survey statistician. There are a number of employment opportunities available in government and the private sector. Visit any survey research company and you are likely to find survey opportunities. Also, don't forget to check the job opportunities in *Amstat News*, *http://magazine.amstat.org*. Finally, if you are interested in learning more about survey research, visit these websites:

- American Statistical Agency, Survey Research Methods Section: *www.amstat.org/sections/srms*
- American Association of Public Opinion Research: *www.aapor.org*
- Council of American Survey Research Organizations: *www.casro.org* ■

SCIENCE POLICY

Open Data: More Questions Than Answers

Jonathan Auerbach

Local, state, and national governments are being pushed to make data freely available in a timely manner, and governments are working to answer this call. In this column, Jonathan Auerbach addresses open data challenges from a New York City perspective and recommends a higher profile of those in academia for addressing them. ~Steve Pierson

What will public participation in government look like in the era of Big Data? Will data be free and abundant, allowing for responsible, evidence-based policy? Or will data be hoarded and distorted by power brokers, inciting public distrust of anything data related? Only the data gods know for sure, but I believe the current open data movement in New York City gives insight into the future of data and its use in public participation and government. This movement suggests many challenges remain before the public can use open data responsibly.

Opinions in this column are those of the author and do not represent the views of the New York City Council in any way.

The Open Data Movement

The open data movement has made tremendous progress in New York. On November 20, 2013, New York City's legislature—the city council—held its first hearing on open data since the passage of its landmark open data law in 2012. The purpose of the hearing was to reiterate the council's commitment to the law and review how well the city has been complying with the law's twin mandates.

The first mandate specifies when data must be released, directing the city to keep its data open "by default" as opposed to "by request." This means all non-sensitive data are to be identified proactively by each agency and released to the public in a series of deadlines ending in 2018. The second specifies how the data must be released, requiring they be released in a raw, consumable format on the city's data website, the Open Data Portal.

The law—possibly the most comprehensive legislation of its kind in the country—is poised to radically increase the quantity and granularity of public information available on New York City—provided it is implemented as written. Noncompliance, however, is not penalized under the law, and there is no incentive other than public pressure for agencies to meet the law's deadlines.

Therefore, the better part of the hearing was on whether the city's departments had identified the appropriate data sets and whether they are on schedule to meet the upcoming deadlines. Spoiler alert: They didn't, and they aren't. In fact, in an ironic twist, the extent to which New York City has been noncompliant with the open data law is so great that city officials have been advised not to release data on their noncompliance.

The City's Limitations

Releasing data is not an all or nothing affair, and to its credit, the city does release a great deal of public information on New York City to a website called NYCStat. Yet, that sort of data is "cooked" (i.e., manipulated, no longer raw), and most of the raw, unstructured data released in compliance with the law have been relatively low stakes, nonpolitical, and therefore not within the "open by default" spirit of the law.

In fairness, compliance with the law is no small task. Governments capture a tremendous amount of information, and, over the last decade, the automation of government services like payroll, emergency response, and fleet management has vastly accelerated this rate of collection. While New York City, like the private sector, has embraced the Big Data movement and begun leveraging this data to evaluate its policies, agencies are not equipped to organize, document, and contextualize their data for widespread consumption.

The reason is that monumental difficulties are associated with collecting and releasing unstructured data in a usable format. For starters, merely identifying the universe of data sets has been an obstacle for the city, and even if all the data were collected into a usable format, disseminating the information while protecting the integrity of the data and—as you might suspect—reputation of the agencies is also a challenge. The question then is to what lengths should the city go to provide the public open data as specified by the law? Even more important: What responsibility does the city have for ensuring the data (and any conclusions drawn from them) accurately reflect the process that generated them? How should the city prioritize in the face of all its limitations?

The Hearing

The coalition of advocates for open data that came to the November hearing was diverse, consisting of representatives from the technology companies, the nascent civic hacker movement, and the traditional transparency watchdogs. Each advocate group had an entirely different reason for wanting the success of the open data law, and open data meant something different to each of them. Some advocates stated clear interests in the benefits to businesses that could create jobs and increase the quality of life for residents (and incidentally increase city tax revenues). Others argued the government side, believing the data will promote transparency and accountability and "crowd source" difficult government problems by unleashing the power of creativity. Equally as diverse were the advocates' technical abilities required to manipulate the data.

Perhaps it was due to this diversity that the coalition focused their testimony almost entirely on their mantra of receiving good data, something on which all the members could agree. They did not specify the types of data and documentation that should be provided given the city's limitations. This is understandable since, for the most part, these groups have never worked with the data they hope to make public or with the agencies that actually produce the data.

Nevertheless, hammering out these details is vital. City law already mandates city agencies to release their data, and I expect they ultimately will, but without agreeing on the specifics, there is a danger the data will be released in a form desirable to no one.

An honest conversation about how best to release the data requires an understanding of how the city functions and experience working with city data. Ideally, a nonpartisan body with this background would lead the discussion on how data can be delivered to the public responsibly. Academia certainly fits the bill. A logical next step would be an engagement between active researchers, the coalition, and the NYC Council. They could hold public seminars, showcase the use of open data sets in research, or send representatives to hearings and public discussions. Despite academia having taken the initiative in defining the proper use of data in many other disciplines, this sort of leadership has largely been absent in the open data oversight process so far. ■

Astrostatistics: The Re-Emergence of a Statistical Discipline

Joseph M. Hilbe, President of the International Astrostatistics Association and Chair of the International Statistical Institute's Astrostatistics Committee

Organizational Support of Astrostatistics: How to Get Involved

The resurrection of the new astrostatistics began with the quintannual Statistical Challenges in Modern Astronomy conferences in 1991, originated by Eric Feigelson and G. Jogesh Babu of Penn State. The conferences brought together astronomers and statisticians to present papers and discuss how astronomers could benefit from statistics. Later that decade, collaborations developed between members of the astronomical and statistical departments of several universities and research institutions. In Europe, a series of CosmoStat conferences have been convened on a periodic basis for some 15 years.

Organizationally, astrostatistics took a giant leap forward at the 2009 ISI World Statistics Congress in Durban, South Africa, where a group of some 40 statisticians and astronomers met for the purpose of forming the first astrostatistics committee authorized by a major astronomical or statistical organization. Led by Joseph Hilbe of Arizona State University/JPL, the committee was authorized under the auspices of the International Statistics Institute (ISI), the world statistics association, in December 2009. Within a month, the ISI Astrostatistics Network was formed, soon growing to more than 200 members.

The independent International Astrostatistics Association (IAA) was approved by the network executive board in January 2012, with the aim of serving as a professional society for researchers having an interest in astrostatistics. With some 430 current members representing 46 nations, the IAA is independent of any other organization, but is formally affiliated with the ISI through the ISI astrostatistics committee and is affiliated with the International Astronomical Union (IAU) through the new IAU Astrostatistics and Astroinformatics Working Group. A similar working group has been created under the scope of the American Astronomical Society.

In 2012, Feigelson secured Penn State University Eberly College of Science sponsorship for an astrostatistics and astroinformatics portal (ASAIP - *https://asaip.psu.edu*), with a webmaster funded through the college. Under the co-editorship of Feigelson and Hilbe, the portal has a current membership of more than 700, representing more than 50 nations. The portal is available for public outreach and internal use by four organizations: the IAA, the IAU Working Group, the AAS Working Group, and the Information and Statistical Sciences Consortium of the planned Large Synoptic Survey Telescope (LSST/ISSC). The LSST aims to take more than 200,000 pictures, or 1.28 petabytes of data, per year for a 10-year period. The Big Data problems of how best to analyze the data are enormous.

Astrostatistics as a discipline has made huge strides over just a five-year period, from occasional conferences and paper sessions to now having its own professional association; working groups authorized by the AAS and IAU; an ISI standing committee; and an ASAIP website with information about every facet of the discipline, including blogs and job postings, articles posted for review, and future conferences. All give evidence of a discipline coming to fruition. A premiere event marking yet another transition in the discipline occurs next May when the first IAU Symposium on Astrostatistics will be held in Lisbon, Portugal.

Statisticians with an interest in astronomy are welcome to join the IAA and become involved in the development of the discipline. Due to external subsidies, there are no membership dues for the portal or IAA. Contact Hilbe at *hilbe@asu.edu* for more information.

If statistics can be generically understood as the science of collecting and analyzing data for the purpose of classification and prediction and of attempting to quantify and understand the uncertainty inherent in phenomena underlying data, surely astrostatistics must be considered as one of the oldest, if not *the* oldest, applications of statistical science to the study of nature. Astrostatistics is the discipline dealing with the statistical analysis of astronomical and astrophysical data. It also has been understood by most researchers in the area to incorporate astroinformatics, which is the science of gathering and digitalizing astronomical data for the purpose of analysis.

Although astronomers throughout the centuries have employed descriptive statistical techniques to their evaluation of the observable universe, and for some two centuries have used inferential methods such as linear regression in predicting astronomical observations, developments in calculus and differential equations were much more useful for astronomical and astrophysical research than least squares regression and most other previously popular statistical methods. The likely reason for this is that physics, which made huge paradigm-shifting advances during the past three centuries, became the foremost component of astronomy as a discipline, and differential equations has been the language of physics.

The fact is that astronomers had, for the most part, little reason to look to statistics or to statisticians for help with evaluating

astronomical data until the past quarter century. This has been even more the case during the last decade, when statistical software, statistical methodology, and computing power became sophisticated enough to warrant the close attention of a growing number of astronomers.

A seeming host of data-gathering mechanisms are now and will be in operation during this and the next decade. The most famous is perhaps the Sloan Digital Sky Survey (SDSS), began in 2000, which has created three-dimensional maps with more than 930,000 galaxies thus far among its many projects. Studies are and will be ongoing for most areas of astronomy, including telescopes for gathering data from the radio, microwave, infrared, x-ray, gamma ray, and optical regimes. New generation radio interferometers, in particular, produce vast data sets with enormous informatics challenges. Time domain astronomy, where a region of the sky is observed repeatedly, is an increasingly important element in 21st-century astronomy. Statistical challenges abound in all fields of astronomy, from the most distant reaches of cosmology to the nearby exoplanets.

We are now firmly in the age of digital astronomy. The amount of data and its complexity is staggering. New statistical algorithms and techniques will need to be developed to understand the data. These techniques, developed by astrophysicists and astrostatisticians, will very likely be able to be employed in other areas of statistical application, as well.

Astrostatistics has surely made a resurrection from its primitive beginnings in the ancient world and near dormancy of the past two centuries. It promises to be at the forefront of future Big Data management and analysis. The timing is now ideal for astronomers and statisticians having an interest in the science to work together to better understand our universe.

We are now firmly in the age of digital astronomy. The amount of data and its complexity is staggering.

Editor's Note: A longer version of this article is available at *http://magazine.amstat.org*. ■

The Assessment of Teachers: Notes from a Conference

Anna E. Bargagliotti, Loyola Marymount University Department of Mathematics

On October 10 and 11 at Michigan State University, the conference titled "Using Student Test Scores to Measure Teacher Performance—the State of the Art in Research and Practice" took place. The conference was sponsored by the Institute for Education Sciences (IES) and led by PIs Cassandra Guarino, Mark Reckase, and Jeff Wooldridge. It brought together about 80 researchers, policymakers, educators, and other interested parties to discuss issues related to the policy implications of teacher performance models such as value-added models (VAMs) and growth models (GMs) (e.g., Colorado Growth Model).

The topic of the conference is relevant to statisticians and statistics educators because as discussion about how teachers should be prepared in statistics take place, it is important to consider how teachers should use and understand teacher performance measures. Since these measures are computed using statistical models, it is natural to discuss their use and computation while preparing teachers in statistics. This short piece is meant to summarize some of the ideas presented at the conference and connect these ideas to teacher preparation in statistics.

VAMs and GMs are statistical models estimating teacher effectiveness based on student performance. VAMs are intended to capture the contribution, or "value added," of an input to student achievement. In general, VAMs, written in panel data form, look like:

$$Yit = \alpha t + \beta j + Yi(t\text{-}1)\gamma + Xit\zeta + \varepsilon it$$

where t indexes the grade, i the student, and j the teacher. denotes the achievement of student i at time t while controlling for prior achievement in time t-1 on the right hand side with $Yi(t\text{-}1)$. βj is a dummy variable for teacher j and thus provides the teacher effectiveness score. The vector Xit denotes a set of child, classroom, and school characteristics. As can be seen by the equation, VAMs rely on student standardized test scores and control for achievement on the prior test.

The GMs refer to models that estimate median growth in a teacher's classroom. First, a growth percentile is computed for each student, and, second, a teacher rank is computed by finding the median growth percentile of the students in his/her class. To estimate the student percentile rank, quantile regression is employed. In particular, 100 percentile regressions are estimated (one for each percentile) while conditioning on prior test score. If $QYit(\tau|x)$ denotes the τth percentile of the current test score Yit, conditioned on prior test score $Yi(t\text{-}1)$ then the model to estimate can be expressed as:

$$QYit(\tau|Yi(t\text{-}1)) = \alpha + Yi(t\text{-}1)\gamma + Xit\zeta + \varepsilon it$$

This equation represents the percentile τ of a student's current test score conditional on the prior test score. A student's percentile score is then computed by finding the predicted percentile closest to the score. When estimating the GM equations in practice, the test score on the right-hand side may be modeled nonlinearly, and typically the models do not control for child, classroom, and school characteristics.

Researchers working on VAMs and GMs are primarily concerned with estimating βj in the VAM equation and computing the median growth in a teacher's classroom based on the quantile estimates for the students in the GM set-up. In both cases, the goal is to estimate teacher effectiveness in such a way that it accurately reflects the underlying effectiveness of a teacher's ability, thus producing reliable measures.

To estimate these models, methodological choices must be made. Choosing an estimation method, thinking about measurement error present in the standardized tests, choosing between random teacher effects versus fixed teacher effects, and deciding on the inclusion of covariates to include in the model are just some of the statistical choices one must make to estimate the models. Related to these choices are the underlying assumptions each methodology relies upon. In general, estimating these models is complex due to issues of nonrandom sorting of students to teachers and teachers to students. There are several papers by the conference organizers and presenters, as well as others, that offer good resources for technical presentations of these models.

Teacher performance measures and pay for performance have been hot topics pushed to center stage due to NCLB requirements and Race to the Top federal funding opportunities. These national policies have required states and districts to incorporate teacher performance measures in teacher evaluation. States and districts may compute the performance measures and use them for several purposes (e.g., teacher assessment, summative information to inform teaching practices). Ideally, these forms of evaluation, among other uses, would be used to inform teachers of how to improve their teaching. Teachers who are able to use summative assessment in their classrooms to make decisions about

teaching strategies could be an important "side-effect" gained from having teacher evaluation performance measures available.

As statisticians and statistics educators think about the statistical preparation of teachers, a key topic to discuss is how to train teachers to understand and make use of summative assessment in their classroom. Assessment and modeling concepts are by nature statistical and should be addressed by statisticians during the teacher preparation process. For in-service teachers, statisticians should be at the forefront of providing professional development to teachers on how to carry out assessment in the classroom, how to understand summative assessment prescribed by federal and state laws, and what the underlying modeling concepts are that are the backbone of teacher performance measures such as VAMs and GMs.

Through this, teachers may gain the ability to understand the language around the teacher performance debates. Of course, we would not expect teachers to take a course on and understand all the nuances and difficulties of estimating teacher performance measures; however, for example, understanding the complexities and interpretations of multivariable regression would be quite appropriate. Moreover, setting up the topic of regression from a modeling perspective is an important viewpoint for teachers to adapt and understand. Instead, teachers focus on single variable regression and discuss it in mathematical lessons while learning the equation of a line. Fitting a line of best fit becomes a calculator problem and the fundamental idea of modeling relationships is quickly lost.

To illustrate, suppose we have a theoretical relationship between several variables we would like to model. Teachers should be able to describe how to write a model (i.e., equation) that represents the relationship we believe may exist among the variables. Furthermore, teachers should be able to use common methods (e.g., OLS methods for regression) to estimate the parameters in the model.

Overall, teaching teachers about modeling in the context of teacher performance also can empower teachers to participate in the conversation revolving around their profession. Statistics is the natural home for this topic, and statistics educators and statisticians should capitalize on the opportunity to teach teachers about assessment and modeling in the education context.

Details and specific examples of how to teach teachers about VAMs and GMs can be found at *http://project-set.com*. Also, more information about the conference discussed above and links to the papers and presentations can be found at *http://vam.educ.msu.edu*. ■

Where Have All the Tenured Women Gone?

Ingram Olkin, Stanford University

This has been a banner year for books, articles, editorials, panels, and discussions about women's issues in industry, government, and academia. Larry Summers' statement about women in science and mathematics was a catalyst for a flood of responses by women in academia. There were many seminars and editorials in universities across the nation. The recent book by Sheryl Sandberg, *Lean In: Women, Work, and the Will to Lead*, focused on the corporate world, and the recent Harvard Case Study on Gender Equity focused on inequities in academia (see *The New York Times* review, September 8, 2013).

The Mathematical Association of America (MAA) provided an analysis on the number of women authors in three of their journals (see *Focus* Oct/Nov 2012). The proportion of women members in MAA is about 25%, and the proportion of women authors in these journals is 72/583 = 12%. However, information about submission rates has not been gathered. I suggest editors of statistics journals begin to collect such data so as to try to determine the reason why women are not more visible as authors.

The JSM meeting in Montréal made it abundantly clear that women are under-represented in named lectures. Of the four named lectures (i.e., Wald, Rietz, Neyman, Fisher), the seven medallion lectures, and the two invited lectures, none were women. The Caucus for Women in Statistics took note of this and collected signatures in a petition calling for change. Terry Speed wrote an impassioned op-ed article in which he described areas of inequity.

This story is not new. Just a year ago, Amanda Golbeck noted the under-representation of women speakers at JSM 2012 (see "Where Are the Women in the JSM Registration Guide," July 1, 2012, *Amstat News*).

My focus here is on the scarcity of tenured women in departments of statistics (excluding biostatistics) at universities offering doctorates. In 1995, I collected data from eight private universities—Carnegie-Mellon, Chicago, Duke, Harvard, Penn, Rice, Southern Methodist, and Stanford—on the number of tenured women in the statistics department. The results were:

0/12, 0/11, 0/7, 0/7, 1/12, 1/10, 1/9, 2/15,

with a composite of 5/83 = 6%. The data from 21 public universities that offered doctorates—Arizona State, Berkeley, Colorado State, Davis, Florida State, Illinois, Iowa, Iowa State, Michigan, Minnesota, North Carolina, North Carolina State, Ohio State, Penn State, Purdue, Riverside, Rutgers, South Carolina, Texas A&M, Washington, Wisconsin—show:

0/24, 0/18, 0/14, 0/14, 0/12, 0/11, 0/9, 0/8, 0/8, 1/21, 1/16, 1/14, 1/14, 1/10, 1/9, 1/7, 2/23, 2/17, 2/4, 3/11, 4/32,

with a composite of 20/243 = 8.2%. (Note that the method of counting the number of faculty was often unclear. In two cases, there were two figures from 0/12 to 1/17 and from 0/8 to 1/13. This changed the composite to 22/173 = 8.1%.)

As in the case of private universities, this is not a cheerful outcome. But when one adds the fact that the pool of women doctoral students is probably in the order of 40%–50%, this becomes an embarrassment for our profession.

The Conference Board of Mathematical Sciences conducts a survey every five years on undergraduate programs in the mathematical sciences (including statistics) in the United States. Although data on doctoral programs is not included, there is data on the faculty. In 2005, the proportion of tenured women in doctoral statistics departments was 79/525 = 15%, and, in 2010, it was 95/560 = 17%. Furthermore, the number of tenured men and women under the age of 45 was 18% for men and 5% for women. Thus, the early generation of men and women is highly unequal. This is an important age group because it often serves as a role model.

To me, the picture is bleak. Of course, the next question is why this is happening. Often, the pipeline is cited as the reason, but with the high number of doctorates awarded to women, this a reason is faulty. The MAA article includes a discussion of what is called "implicit bias" that notes that "even well-meaning individuals can display bias." Consider the following statement made either at admission of students, hiring of faculty, or giving an award: Let's choose the best candidate. At face value, this is a most reasonable statement. However, there lurks in the shadow the definition of "best," which often means "just like us," and, of course, the "us" are men. There are also examples, all too numerous, of "explicit bias." These have been documented in many articles.

Women faculty members in a department of mathematical and statistical sciences are often isolated, with perhaps only one or two colleagues. They generally have difficulty in generating collaborative research. The National Science Foundation could help this group by providing summer support for them to visit statistical centers that have strong summer research activities. This is most profitable for faculty in their third or fourth year. Such visits permit them to present their work to a wider audience and interact with a more established statistical faculty, which they may not have in their home institution.

There is an incentive program in the United Kingdom called Athena SWAN (Scientific Women's Academic Network) that offers bronze, silver, and gold awards to university schools or departments that increase equity by increasing the number of women students or activities that improve gender equality, or for achievement in equality in career progress in STEMM (science, technology, engineering, mathematics, medicine).

I would argue that the situation will not change by much at the departmental level. We have had ample opportunity for change, but it has not happened. A perusal of the composition of tenured faculty over the last 20 years will provide ample evidence of our falure at bringing women into statistics departments. I believe the university administration at the dean's or at the provost's level needs to step in by offering incentives such as positions for women (and, of course, for other minorities). There are some success stories. For example, North Carolina State University Dean Dan Solomon made a special effort to increase the number of women in the statistics department. However, it may take a more dramatic effort in the form of an incentive, such as extra travel or departmental research funds for each new tenured woman faculty member. The culture at universities are varied and each administration needs to determine what type of incentive might succeed in increasing diversity in statistics departments. ■

Analytical Attire

Leanna House and Scotland Leman, Virginia Tech

In the July issue of *Amstat News*, 2013 ASA President Marie Davidian put on paper issues, concerns, and questions many statisticians have about the emerging field called data science. In the context of Big Data, data science—just like statistics—is fundamentally a discipline in researching methods to find information in data. Yet, for the sake of data science—not statistics—institutes are being built, grants are being solicited, and industries are investing. In fact, statisticians are often excluded from current data science initiatives. Why? What needs to change so we are included?

Davidian, in collaboration with Rachel Schutt of Johnson Research Labs, suggested specific actions that statisticians at universities can take to be included in future initiatives. In particular, they advocated that statistics departments embrace industry more (e.g., statistics faculty should attend and sponsor conferences that industries attend, pursue sabbaticals at Big Data industries, and invite researchers from industry to present at colloquiums). Although including industry in statistics departments is a worthwhile action, we think a fundamental shift in how statisticians think is needed. We must be willing to change our analytical attire, so that we can play with data scientists in the playground of Big Data. As statisticians, our analytical clothes are neat and tidy.

We pride ourselves on slick mathematical theory (typically based in probability theory), "objective guarantees," general wisdom, and our willingness to be included in collaborative projects. Yet, Big Data problems addressed by data science are, as Schutt pointed out, messy. In fact, they are downright dirty!

To play effectively with others and be invited to the playground of Big Data while maintaining our identity as statisticians, we need two sets of analytical clothes—those we don't mind getting dirty and those we keep clean. Theorems and proofs are concise, precise, and, ultimately, clean, whereas big data sets are unstructured and messy. They seldom adhere to our mathematical assumptions. Staying clean and getting dirty can't be obtained simultaneously. Just as relying on one simple dress code doesn't work in daily life, it won't continue to work in departments of statistics. Different clothing is appropriate for different occasions.

To extend our closets, we must 1) acknowledge and value differences between industry and academia and 2) change how we educate undergraduate and graduate students. While the goals of both industry and academic departments are symbiotic, they are inherently different. Analysts in industry aim to solve specific problems that advance their companies and value practical skills for solving them. Also, the solutions developed do not need to pass the test of time because the problems in industry are constantly changing. New problems in industry require and result in new heuristic solutions.

In academia, statisticians work on advancing general knowledge by developing theory and methods that apply in diverse settings. It is important to us (the academics) to identify, assess, and articulate analytical assumptions to generalize methodology and quantify uncertainty. But, doing so takes time that those in industry do not have. Time is money, so to speak. So, to extend our closets, statisticians must accept without prejudice the needs of industry and recognize when to take time for analyses versus when to get dirty. In turn, departments must value the applied work of faculty when they choose to collaborate with industry.

For example, tenure and promotion applications from statisticians who work with industry will publish considerable work in applied journals, rather than top-tier theoretical journals. To value industry means to value the work it produces and the statisticians who wear the right clothes to do it.

In regard to education, right now we mostly offer clean clothes to our undergraduate and graduate students in statistics. Yet, it is at universities where we sculpt the field of statistics and impress upon students the scope and relevance of statistics in problemsolving. To preserve our place as the primary educators of statistics/data science, we must balance lessons from industry and "traditional" statistics curricula as depicted in Figure 1.

Provided the domain of analytical methods, statistics professors at all levels tend to teach the theoretical foundations of analytical methods. Whereas, those in industry and applied programs may rely heavily on heuristic analytical algorithms, without a thorough understanding of their utilities or how they relate to other methods. We suggest a balanced,

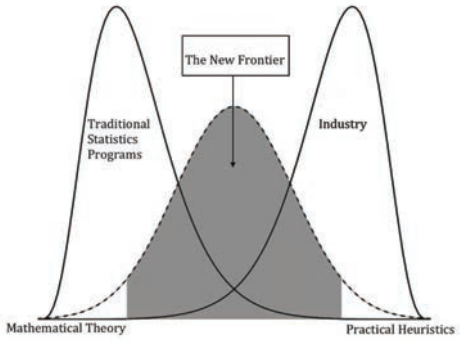


Figure 1: The distribution of concepts covered in academia, industry, and (what the authors suggest) both

symmetric curriculum so that students wear clean and dirty analytical clothes.

For example, consider Data Analytics I taught at Virginia Tech for graduate students. Data Analytics I is taught jointly by statistics and computer science and is often accompanied by an industrial partner. The class is populated by engineers and statisticians (nearly 50/50) with varying analytical backgrounds. One of the primary objectives is to highlight the skills of both statisticians and computer scientists.

For example, the course starts by surveying a simple, but messy, classification problem. A few teaser techniques are motivated and compared (specifically linear regression and K-nearest-neighbors). Subsequently, a statistical guiding light is shone on the problem in the form of a question: What is the optimal solution? Because questions in optimality are steeped in assumptions, clean statistical solutions are presented. Then, the classification problem is complicated by additional noise, outliers, and/or heterogeneity in the data so the set of assumptions becomes inapplicable and dirty solutions become desirable. In turn, students experience changing analytical clothes and choose the method that is best suited for their analyses. The students learn that the clean and dirty solutions are complementary. Given a comparison of the different sides of the clean/dirty solution spectrum, students are taught to identify the solutions that best meet the demands and goals of the problem at hand.

To conclude, we make one final point about education. Changing how we teach statistics has the added advantage of changing how we are perceived as statisticians. For many students, we have one opportunity—one introductory statistics course—to impress upon them the importance, breadth, and utility of statistics. Yesterday's students are today's doctors, lawyers, policymakers, entrepreneurs, and researchers in industry. By changing how we educate—demonstrating the versatility of statistics and providing opportunities to change analytical clothes—we will change the perception of statistics and the role statistics has in future data science endeavors. Let's get dirty! ■

Boston: A City with Many Historical Nicknames

John D. McKenzie Jr., BCASA Local Arrangements Committee

The Joint Statistical Meetings will return to Boston, Massachusetts, August, 2–7, for the first time in 22 years, providing an opportunity for members to visit the numerous historical sites in and around New England's largest city and the United States' fourth most popular city destination, which has at least 11 nicknames due to historical contexts.

While it was at one time the largest settlement in the British North-American colonies, it is a relatively small major city in the United States today, with a 2010 population of 617,594. However, it is within the 6th-largest metropolitan area by population. Founded in 1830, 10 years after the pilgrims settled in Plymouth, Massachusetts, its initial location was a small peninsula, named Shawmut for its Native-American inhabitants. The site was chosen due to its fresh water.

Boston was originally named Trimountaine for its three prominent hills, two of which disappeared as it grew. Beacon Hill, although reduced in size in the early 1800s, remains with the Commonwealth's capital building on land originally owned by John Hancock and a 23k gold gilded dome. Beacon Hill is also a historic neighborhood of federal-style row houses, known for its narrow, gas-lit streets and brick sidewalks. Hence, Boston has been referred to as "The City on the Hill."

Boston's second and current name came from Boston, Lincolnshire, England, the British ancestral home of several influential Puritan settlers. In 1822, the town of Boston, which had recently annexed the neighboring town of South Boston, became a city with a population of 45,000. Between 1836 and 1912, the footprint of the city increased by municipal annexation of nine additional towns and land reclamation from the Charles River and Boston Harbor. Still, compared to other major U.S. cities, the size of Boston is quite small. Due to Boston's compact and high-density nature, it is often called "America's Walking City."

Boston is also known as the "Cradle of Liberty" due to the 1770 Boston Massacre, its non-violent protest due to the unauthorized taxing of tea by the monarchy three years later, and the withdrawal of British forces from Boston on March 17, 1776, which essentially ended the American Revolution in the Eastern Colonies (today's New England states) and provided the model document for the United States Constitution in 1787.

Many historical sites can be located on the 2.5-mile Freedom Trail. Among them are Faneuil Hall, the Old North Church ("one if by land, two if by sea"), the Bunker Hill Monument ("don't shoot, until you see the whites of their eyes"), the Old State House, and the *U.S.S. Constitution* ("Old Ironsides")—the oldest commissioned naval vessel afloat.

The trail begins at the Boston Common, the oldest public park in the United States. It contains a number of interesting structures. One is the Robert Gould Shaw Memorial that honors the Afro-American 54th Massachusetts Volunteers ("Glory"). Another acknowledges Boston's Oneida Football Club for its creation of American football. Also present is the MBTA Boylston Station, which was the original station of the first subway in the United States. The neighboring Boston Public Gardens was the country's first public botanical garden. Among its statues is one honoring George Washington, who took command of the Continental Army in Boston in 1775; another commemorates the use of ether in anesthesia. Boston Common and Boston Public Garden are part of the historical Emerald Necklace designed by Frederick Law Olmsted.

In the late 1700s, Boston became a bustling seaport. It was one of the world's wealthiest international trading ports, exporting products such as rum, fish, salt, and tobacco. In the early 1800s, it and New York City were the financial centers of the United States. In 1813, wealthy Bostonians created the Boston Manufacturing Company, which led to New England's domination of cotton textiles for close to 100 years. These "Brahmin elite" established a particular semi-aristocratic value system by the 1840s—cultivated, urbane, and dignified.

William Tudor called Boston "The Athens of America" for its abundant cultural and intellectual influence. About the same time, the city became the center of the abolitionist movement. It also produced a number of superb hospitals, among them today's Massachusetts General and Brigham and Women's. In 1858, Oliver Wendell Holmes identified Boston as "The Hub of the Solar System," which has developed into "The Hub of the Universe" or just "The Hub."

These Brahmin elite were partially responsible for financing the growth of railroads across the United States. Two noteworthy Boston inventions in the late 1800s were Alexander Graham Bell's telephone and King C. Gillette's disposable blade safety razor. Strength in these and related manufacturing industries continued until the middle of the 20th century, when they declined due to competition from other parts of the country. Today's Boston is known for its finance, technology, medicine, and education.

Education has been and continues to be a major component of Boston's economy. Most people consider Harvard University, the nation's oldest institution of higher education (1636), and the Massachusetts Institute of Technology (MIT) within the city, even though they are based in neighboring Cambridge. Harvard's medical school, school of public health, and business school are located in the city, however, and MIT was located in Boston from 1865 to 1916. Today, there are 30 colleges and universities based in Boston. The four largest are Boston University, Northeastern University, Suffolk University, and the University of Massachusetts in Boston, which is next to John F. Kennedy Presidential Library and Museum. In the metropolitan Boston area, there are an additional 28 such institutions. There are approximately 250,000 college students enrolled at these schools each year.

The Boston Latin School was the first public high school in the United States (1635). The Boston Public Library was the first large free municipal library (1848) and the first to allow individuals to borrow books and other materials.

As previously mentioned, the first inhabitants of the city were Protestants from England. After the Potato Famine, a large number of Irish Catholics immigrated to the city, followed by many Italians. Recently, Boston has become a majority minority city.

The building in which the American Statistical Association was founded no longer exists. #15 Cornhill Street, the home of the American Historical Society in 1839, was on a street destroyed during the construction of Boston's Government Center in the 1960s. Cornhill was known for its religious, social, and political thinkers in the 1800s. The convention center, in which the 2014 Joint Statistical Meetings will be held, is located in the Seaport district of South Boston, with its recently opened innovation center. ■

10th ICHPS a Success Despite Shutdown

The Polkaholics performed Thursday evening at Phyllis' Musical Inn in the Wicker Park neighborhood.

More than 260 statisticians, methodologists, and health policy experts gathered October 9–11, 2013, at The Palmer House Hilton Hotel in Chicago, Illinois, for the 10th International Conference on Health Policy Statistics (ICHPS) (*www.amstat.org/meetings/ichps/2013*), which was co-chaired by Xiao-Hua Andrew Zhou of the University of Washington and Donald Hedeker of the University of Illinois at Chicago.

The meeting's theme, "Statistically Engaged Health Care Policy," reflected the growing importance of the collaboration and engagement of statisticians in evaluating and improving health care policy in the United States and throughout the world.

Major presentations covered a range of topics, including comparative effectiveness research, causal inference, longitudinal data, missing data, propensity score methods, data synthesis, personalized medicine and dynamic treatment regimes, and methods for patient-reported outcomes. Keynote addresses included "The Reincarnation of Health Policy Statisticians," by Seth Eisen of the Office of Research and Development of the Department of Veteran Affairs, and "Statistics and Health Policy in 2013—Progresses and Retreats," by Sharon-Lise Normand of the Department of Health Care Policy at the Harvard Medical School. Also, Robert Gibbons of the departments of medicine and health studies and director of the Center for Health Statistics at The University of Chicago, gave the plenary address, "The Future of Mental Health Measurement."

Due to the federal government shutdown in October, a number of government employees could not attend the conference. Indeed, Eisen could not attend the conference in person, but instead delivered his keynote over the phone with the help of co-chair Andrew Zhou. Also, several presentations and one workshop were cancelled, though the quality of the conference didn't suffer.

The conference also included presentation of the Health Policy Statistics Section's biennial awards. Honored with the Long-Term Excellence Award were Naihua Duan, professor emeritus of Columbia University, and Robert Gibbons of The University of Chicago. A mid-career award was presented to Susan Paddock of RAND Corporation, and 15 students received student travel awards for their presentations at the conference.

The Polkaholics, a band led by Don Hedeker, performed Thursday evening at Phyllis' Musical Inn in the Wicker Park neighborhood. This performance was especially memorable since it featured Brad Carlin of the University of Minnesota, who joined the band on keyboards and vocals. As the band performed the hour-long set, several eminent statisticians were seen dancing to the crazy polka music!

The 10 conference workshops (attracting nearly 400 attendees) featured topics such as hierarchical models for longitudinal-survival data, missing data in longitudinal studies, causal inference, propensity score methods, and comparative effectiveness research. Zhou concluded the conference by leading an informative workshop on estimation of re-identification risk in de-identified data.

The 11th ICHPS—planned for October of 2015—will be co-chaired by Kelly Zou of Pfizer, Inc., and Recai Yucel of SUNY Albany. For more information, contact Zou at *Kelly.Zou@pfizer.com* or Yucel at *ryucel@uamail.albany.edu*. ■

Eleven ASA members and two current or former ASA staff members were named 2013 Fellows by the American Association for the Advancement of Science (AAAS) November 25. Members bestowed the honorific include the following:

Ann Bostrom, University of Washington

Raymond J. Carroll, Texas A&M University

Paul D. Cleary, Yale University

Barry R. Davis, The University of Texas School of Public Health

Kim-Anh Do, The University of Texas MD Anderson Cancer Center

Bani K. Mallick, Texas A&M University

David Manderscheid, University of Nebraska

H. Joseph Newton, Texas A&M University

Alberto Palloni, University of Wisconsin-Madison

Robert T. Smythe, Oregon State University

Michael Stein, The University of Chicago

ASA Staff:

Former Research and Graduate Education Manager **Keith Crank**

Science Policy Director **Steve Pierson**

To view the list of all 388 new Fellows, visit the AAAS website at *www.aaas.org/news/releases/2013/1125_fellows.shtml*.

Sallie A. Keller and **Stephanie Shipp** recently established the Social and Decision Analytics Laboratory (SDAL) at Virginia Tech's National Capital Region research facility in Arlington, Virginia.

Chris Barrett, Virginia Bioinformatics Institute's scientific director stated in a press release that "Professor Keller, Dr. Shipp, and the SDAL bring a leading-edge statistical data sciences approach that bookends the advanced computational team and approach of the NDSSL. A unique, timely, and urgently needed integrative program for Big Data–oriented analytics is being created. In addition to her impressive personal research achievements, Sallie is well known for multidisciplinary team building. Since there are no big problems that reside cleanly inside single academic disciplines, her passion for working outside disciplinary boundaries will fit perfectly in the VBI team science, big question approach."

To read more about SDAL, visit Virginia Bioinformatics Institute's website at *http://bit.ly/19cJZ0u*.

In a September speech on the floor of the U.S. House of Representatives, Rep. Jim McNerney (D-CA) praised ASA member **Genevera Allen** for an important breakthrough in statistics and neuroscience research. Allen and colleagues developed statistical methods to model how an individual's brain is wired and applied these methods to synesthesia—the process of associating specific colors with numbers and letters. This breakthrough is relevant to other neurological diseases, such as autism and Alzheimer's, and demonstrates the vital role of statistics in neuroscience research. To hear McNerney's speech, visit *www.c-spanvideo.org/clip/4465538*.

Douglas Montgomery recently was named an American Society for Quality (ASQ) "honorary member." The award is ASQ's highest membership category. To be so honored, ASQ says, "An honorary member shall have rendered acknowledged eminent service to the quality profession or the allied arts and sciences." Montgomery is Arizona State University Regents' Professor of Industrial Engineering and Statistics and an ASA Fellow. To view a complete list of honorary members, visit ASQ's website at *http://asq.org/about-asq/who-we-are/honorary-members.html*.

Karl E. Peace was honored with a plaque and testimonials at a special awards session of the 20th anniversary meeting of the Biopharmaceutical Applied Statistics Symposium (BASS XX), held November 4–7, 2013, in Orlando, Florida.

Peace was honored for his numerous contributions to the statistics profession, including founding and directing BASS. Among the profession's premier statistical meetings, BASS has contributed to some 50 students obtaining their doctorate or master's degree in biostatistics.

Given in recognition of Peace's 20 years of "… devoted service to the profession of statistics through the conception and leadership of the Biopharmaceutical Applied Statistics Symposium," the plaque was presented to Peace on the evening of November 4, 2013.

The plaque was signed by W. Hans Carter Jr., chair emeritus of the department of biostatistics at MCV; Robert T. O'Neill, past director of the

ISOSS Celebrates Silver Jubilee, International Year of Statistics

Shahjahan Khan, University of Southern Queensland, Australia

From left: Munir Ahmed, Abdus Salam Hirai, Shahjahan Khan, Javed Siddiqi, and Muhammad Hanif Mian

On November 22, 2013, a large number of statisticians and patrons and supporters of statistics gathered at the ISOSS House in Lahore, Pakistan, to celebrate the 25 years of professional services of the Islamic Countries Society of Statistical Sciences (ISOSS).

The society was established in Lahore in 1988 in the First Islamic Countries Conference on Statistical Sciences (ICCS-1) to promote statistical sciences and their diverse applications in various sectors of lives and societies in the Islamic countries. Its membership is open to statisticians of all orientation.

The founding president of ISOSS, Munir Ahmad, gave a brief history of ISOSS and its landmark contributions. He emphasized the need to create provincial and local societies of statisticians in Pakistan to organize national conferences and promote other statistical activities.

Founding secretary general of ISOSS, Akhlaq Ahmad, and two most senior living statisticians of Pakistan, Abdus Samad Hirai and Ahmad Zogo Memon, shared their experiences with their young predecessors.

The past president of ISOSS, Shahjahan Khan of the University of Southern Queensland, Australia, was the chief guest and highlighted recent activities of ISOSS and the need for new leadership with excellent achievement.

Emeritus Professor Javed Siddiqi of Sheffield Hallam University, United Kingdom, and a former head of the British Computer Society, also spoke at the event. The founding vice president, Muhammad Hanif Mian, was also present.

Everyone thanked the executive secretary of ISOSS, Mohammad Iftekhar, for his outstanding professionalism and contributions to ISOSS. A traditional Pakistani dinner was served at the end of the meeting.

The event also marked the celebration of the International Year of Statistics and Mathematics of Planet Earth. J. Siddiqi and S. Khan also participated in the Kinnaird Multidisciplinary Research Conference held at the Kinnaird Women College, Lahore, November 18–19, 2013, as part of its celebration of 100 years.

Participants were invited to the forthcoming 13th Islamic Countries Conference on Statistical Sciences (ICCS-13), to be held at Bogor Agricultural University (formerly IPB, Bogor), Indonesia, December 18–21. The theme of the conference is "Statistics for Better a Life." For more information, email *iccs13@isoss.net* or visit *www.iccs13.isoss.net*.

Office of Biostatistics, CDER, FDA; and Ron Wasserstein, ASA executive director.

Testimonials were provided by Richard Simon, Gary Koch, Hans Carter, Jim Nick, Jeff Schwartz, Tony Segreti, Greg Enas, and Andreas Sashegyi. Copies of the written testimonials can be viewed at *http://magazine.amstat.org/wp-content/uploads/2013an/Tributes_Peace.pdf.* ■

Obituary

Leonard R. Shenton

passed away peacefully at his home November 19, 2013, at the age of 104. Born on February 4, 1909, in Talk O'th Hill, England, he attended grammar school in Manchester.

Seven years ago, he recalled to Kimiko Bowman—his student and longtime collaborator—that the grammar school he went to was strong on mathematics: "The headmaster had written a book on applied mathematics (Newtonian mechanics), working under the guidance of A.C. Aiken." It was during that time he became well known with the textbook, written by Witaker and Watson, *A Course of Modern Analysis*.

Around 1962, Shenton came to the United States and took a job at Virginia Polytechnic Institute. "The general impression I got from the department," he told Bowman, "was very friendly and [made up of a] hard-working group of faculty members and students." It was there he met Bowman, whom he worked with for the next 45 years.

He was an elected member of the International Statistical Institute and the American Association for the Advancement of Science and a Fellow of the American Statistical Association.

Ellis R. Ott Scholarship

The Statistics Division of the American Society for Quality is pleased to announce the availability of $7,500 scholarships to support students enrolled in, or accepted into enrollment in, a master's degree or higher program with a concentration in applied statistics and/or quality management. This includes the theory and application of statistical inference, statistical decisionmaking, experimental design, analysis and interpretation of data, statistical process control, quality control, quality assurance, quality improvement, quality management, and related fields. The emphasis is on applications, and studies must take place at North-American institutions.

During the last 16 years, scholarships totaling $245,000 have been awarded to 45 deserving students. Last year, scholarships went to Lucy D'Agostino of Washington University School of Medicine in the PhD category and Alyssa Peck of Montana State University and Holly Sweeney of North Carolina State University in the master's category.

Qualified applicants must have graduated in good academic standing in any field of undergraduate study. Scholarship awards are based on demonstrated ability, academic achievement, industrial and teaching experience, involvement in student or professional organizations, faculty recommendations, and career objectives.

Applications will be accepted until April 1. Instructions and forms should be downloaded from *http://asq.org/statistics/about/awards-statistics.html*.

For more information, contact Lynne B. Hare at *lynnehare@verizon.net*.

Governing Board: Susan Albin, Lynne Hare, J. Stuart Hunter, Tom Murphy, Dean V. Neubauer, Robert Perry, Susan Schall, and Ronald Snee

Jeanne E. Griffith Mentoring Award

Nominations are sought for the 2014 Jeanne E. Griffith Mentoring Award, which was created to encourage the mentoring of junior staff in the statistical community in the federal, state, or local government. It is awarded annually to a supervisor; technical director; team coordinator; or other member of the federal, state, or local government statistical staff for his or her efforts in supporting the work and developing the careers of junior staff.

The award was established to honor Griffith, who died in 2001 after working for more than 25 years in the federal statistical system. Throughout her career, and especially in her latter senior management positions at the National Center for Education Statistics and National Science Foundation, one of Griffith's highest priorities was to mentor younger staff at all levels to learn, grow, and seize career opportunities as they came along.

Nominations for 2014 will be accepted until April 4 and should be prepared in the form of a letter or memorandum for the award selection committee. The letter or memorandum should summarize the nominee's actions that support and encourage junior staff in the federal, state, or local statistical community in developing their careers. Nominations may be accompanied by up to six supporting letters.

The committee will make its determination of the award winner by April 30. The award will consist of $1,000, a citation, and a plaque, which will be presented at a June ceremony arranged by the co-sponsors.

For more information about the nomination process, visit *http://bit.ly/1dGfvCx* or *http://bit.ly/19sTGXQ*.

If you have questions about the award, contact Rick Peterson at *rick@amstat.org* or Deborah Griffin at *Deborah.h.griffin@census.gov*.

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

www.amstat.org/awards

March 1, 2014 ASA Fellows	Nominations accepted online at *www.amstat.org* beginning October 1, 2014 Questions: Katherine L. Monti, *kmonti@rhoworld.com*
March 15, 2014 ASA W. J. Dixon Award for Excellence in Statistical Consulting	Nominations: Pam Craven, *pamela@amstat.org* Questions: Lloyd J. Edwards, *lloyd_edwards@unc.edu*
March 15, 2014 ASA Founders Award	Nominations: Pam Craven, *pamela@amstat.org* Questions: Marie Davidian, *davidian@ncsu.edu*
March 15, 2014 ASA W. J. Youden Award in Interlaboratory Testing	Nominations: Pam Craven, *pamela@amstat.org* Questions: Michael J. Messner, *messner.michael@epa.gov*
March 15, 2014 ASA Waller Distinguished Teaching Career Award	Nominations: Pam Craven, *pamela@amstat.org* Questions: Bradley A. Hartlaub, *hartlaub@kenyon.edu*
March 15, 2014 ASA Waller Education Award	Nominations: Pam Craven, *pamela@amstat.org* Questions: Bradley A. Hartlaub, *hartlaub@kenyon.edu*
March 15, 2014 Karl E. Peace Award for Outstanding Statistical Contributions for the Betterment of Society	Nominations: Pam Craven, *pamela@amstat.org* Questions: G. David Williamson, *dxw2@cdc.gov*
March 31, 2014 ASA Statistics in Chemistry Award	Philip J. Ramsey, *pjrstats@aol.com*
April 1, 2014 ASA Gertrude M. Cox Scholarship	Applications & Questions: Pam Craven, *pamela@amstat.org*
April 1, 2014 ASA Outstanding Statistical Application Award	Nominations: Pam Craven, *pamela@amstat.org* Questions: DuBois Bowman *dbowma3@emory.edu*
April 1, 2014 ASA Edward C. Bryant Scholarship	Applications: Pam Craven, *pamela@amstat.org* Questions: Tapabrata Maiti, *maiti@stt.msu.edu*
April 1, 2014 ASA Excellence in Statistical Reporting Award	Nominations: Pam Craven, *pamela@amstat.org* Questions: Morteza Marzjarani, *mortkm2@yahoo.com*
April 1, 2014 ASA Samuel S. Wilks Memorial Medal	Nominations: Pam Craven, *pamela@amstat.org* Questions: Lynne Billard, *lynne@stat.uga.edu*

sectionnews

Biometrics

Edited by Feifei Wei, Biometrics Section Publications Officer

The Biometrics Section would like to thank Jianwen Cai for her excellent service during the past year. She will assume the past chair position as Mike Daniels becomes chair in 2014 and Diana Miglioretti becomes chair-elect. We also wish to thank Council of Sections representative Page Moore, whose role will now be taken by Joe Hogan.

The Biometrics Section is pleased to sponsor the following invited sessions at the Joint Statistical Meetings, August 2–7 in Boston, Massachusetts:

Statistical Methods for Modern Complex-Structured Imaging Data, organized by Veera Baladandayuthapani of The University of Texas MD Anderson Cancer Center

Recent Developments in the Analysis of Semi-Competing Risks Data, organized by Sebastien Haneuse of the Harvard School of Public Health

Recent Development in Variable Selection Methods, organized by Zhangsheng Yu of the Indiana University School of Medicine

Emerging Statistical Methods for Complex Data, organized by Lan Xue of Oregon State University

New Challenges in Survival Analysis, organized by Yichuan Zhao of Georgia State University

Abstract submissions for contributed and topic-contributed papers will be accepted online until February 3. See *www.amstat.org/meetings/jsm/2014/abstracts.cfm* for more information.

Topic-contributed sessions are a nice alternative to contributed sessions because they are organized around a central topic, the talks are longer (20 minutes, rather than 15), and one can have discussants as well as speakers. Sessions consist of five participants (e.g., four speakers and one discussant or three speakers and two discussants).

Those interested in organizing a topic-contributed session should notify the 2014 JSM Biometrics Section chair, Jonathan Schildcrout, at *jonathan.schildcrout@vanderbilt.edu*. They also must submit a proposal

online by January 15. See *www.amstat.org/meetings/jsm/2014/topic-contributed.cfm* for instructions on organizing and submitting a topic-contributed session.

Also consider proposing a topic-contributed panel session. Panel sessions have 3–6 panelists, and the session submission format involves one abstract for all speakers. Note that if each speaker wishes to provide an abstract, speak on a specific topic, and submit an individual paper for *JSM Proceedings*, then the session should be a paper session.

Teaching of Statistics in the Health Sciences

Robert Oster, Section Publications Officer

Officers of the Teaching of Statistics in the Health Sciences (TSHS) Section are pleased to recognize the following JSM TSHS award winners for 2013:

Distinguished Achievement Award: Cynthia R. Long, Palmer Center for Chiropractic Research

Outstanding Teaching Award: Roger D. Vaughan, Columbia University

Best Contributed Paper Award: Steven C. Grambow, Duke University, for "Doctors and Data Analysis: A Dangerous Mix?"

During 2014, the section will offer the Young Investigator Award, Outstanding Teaching Award, and Best Contributed Paper Award (at JSM 2014).

The Young Investigator Award, presented annually, recognizes an outstanding young investigator (i.e., a current graduate student or someone who received a terminal degree no more than five years ago, is in a position with rank below associate professor, and does not hold tenure or its equivalent) who is the first author of an abstract submitted to the TSHS Section for JSM.

The abstract should be related to the use of effective methods in statistics education in the health sciences. For the award competition, an applicant should submit a full paper to the TSHS Section based on the abstract submitted for JSM 2014. Also included in the submission should be a cover letter, copy of the abstract, and statement of the nominee's philosophy of teaching.

The Outstanding Teaching Award, presented annually, recognizes an outstanding statistics teacher in the health sciences and requires a formal nomination package that includes a nominating letter, curriculum vitae with particular emphasis on activities related to teaching/training, statement of the nominee's philosophy of teaching, and three letters of reference from colleagues summarizing the nominee's teaching/training abilities.

Details about these awards will be announced via email and posted on the TSHS website (*http://community.amstat.org/TSHS/Home*). The deadline for receipt of nominations is March 7. Winners of these awards will be notified in April and formally recognized at the TSHS business meeting and mixer at JSM 2014 in Boston, Massachusetts.

Physical and Engineering Sciences

Robert Wilkinson, The Lubrizol Corporation

The 57th Fall Technical Conference (FTC), co-sponsored by the ASA and American Society for Quality (ASQ), was held October 17–18 in San Antonio, Texas. The conference was well attended despite the government shutdown.

Sessions covered a wide range of topics in statistics and quality. These included invited sessions from the sponsoring groups (i.e., sessions on Big Data (ASA-Q&P), experimental planning (ASQ-STAT), and project properties of nonconfounding designs (ASQ-CPID)), along with a panel discussion on the state of applied industrial statistics (ASA-SPES). There was a session honoring Stu Hunter's many contributions to quality engineering and a lunchtime tribute to George Box. Also noteworthy were invited sessions from *Technometrics*, *Quality Engineering*, and the *Journal of Quality Technology*; many contributed sessions on DOE, quality, and reliability; and a lunchtime presentation by 2013 ASA President Marie Davidian.

On the day preceding the conference, four short courses were offered that spanned a range of topics, including DOE, text mining, and reliability. Equally as valuable were the many opportunities to interact with colleagues from the statistics and quality areas. The River Walk provided an excellent setting for those discussions.

The section also is accepting papers for the 2014

To view section news in its entirety, visit *http://magazine.amstat.org.*

Applications for Natrella Scholarship Being Accepted

The Quality and Productivity Section of the American Statistical Association announces the 2014 Mary G. and Joseph Natrella Scholarship, which supports student participation in the Quality and Productivity Research Conference (QPRC). Winners will receive a $3,500 grant, a $500 stipend toward travel and housing expenses, complimentary registration for the conference, and complimentary registration for the pre-conference tutorial given in conjunction with the conference. In addition, winners will give a presentation on their research at the QPRC, which will be held in Seattle, Washington, June 23–26. The scholarship is funded by the Mary G. and Joseph Natrella Scholarship Fund and the Quality and Productivity Research Conference.

Purpose and History

The scholarship was initiated by a contribution to the ASA Quality and Productivity Section by Joseph Natrella at the time of Mary Natrella's death to honor her many contributions to the advancement of statistical methodology and sound statistical practice in engineering and physical sciences. The Natrellas always maintained a strong mutual interest in quality applications of statistics. Mary was for many years a staff member of the Statistical Engineering Division of the National Institute of Standards and Technology (NIST). Joe's career was primarily with the Department of Defense and NASA as a mathematician in charge of data processing and computations.

Mary's most important publication, *NBS Handbook 91: Experimental Statistics*, is one of the best-selling publications of NIST. Originally published in 1963 by the Government Printing Office, it was later reprinted by Wiley-InterScience and Dover Publications. The ASA Q&P Section established the scholarship in 2000 to honor Mary's distinguished career as an author, teacher, and consulting statistician.

Eligibility

Application is open to students pursuing a master's or doctoral degree full-time at an accredited college or university. The student must have a demonstrated interest in quality applications as evidenced by coursework, research topic, prior work experience, etc. Applicants should be prepared to make a presentation of their research at the 2014 Quality and Productivity Research Conference. Applicants will receive equal consideration regardless of age, color, creed, disability, ethnicity, gender, marital status, military status, race, or sexual orientation. Students who have previously received the Natrella Scholarship are not eligible to apply again.

Important Dates

The application deadline is March 21. Scholarship recipients will be selected by April 11, and scholarships will be awarded at the QPRC banquet on June 24.

More information and application materials can be found at *http://community.amstat.org/QP/ScholarshipsAwards/MaryGandJosephNatrellaScholarship*. For further information, contact a member of the scholarship committee at *natrella.scholarship.committee@gmail.com*.

Fall Technical Conference, to be held October 2–3 in Richmond, Virginia. The abstract submission deadline is February 26, 2014. Contact Flor Castillo (*fcastillo@americas.sabic.com*) for details and further information. ■

chapter news

To list your sections' news in *Amstat News,* send an email to managing editor Megan Murphy at *megan@amstat.org* with the details.

New Jersey

The New Jersey Chapter of the ASA and Bayer Pharmaceuticals co-sponsored a benefit/risk workshop at Bayer in November 2013. Nearly 100 attendees heard informative talks about FDA's current plans for incorporation of a structured approach to benefit-risk in its review process and pragmatic considerations for endpoint selection and display in cardiovascular benefit-risk assessment by Bennett Levitan. They also heard a case study using the BRAT framework and quantitative methods for benefit-risk assessment by Chistoph Dierig and examining benefit and risk simultaneously at the individual patient level by Christy Chuang-Stein. The speakers and Gary Koch addressed questions from the audience during the panel discussion. ■

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

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

Professional Opportunities vacancies also will be published on the ASA's website (*www.amstat.org*). Vacancy listings will appear on the website for the entire calendar month. Ads may not be placed for publication in the magazine only; all ads will be published both electronically and in print.

Rates: $320 for nonprofit organizations (with proof of nonprofit status), $475 for all others. Member discounts are not given. For display and online advertising rates, go to *www.amstat.org/ads.*

Listings will be invoiced following publication. All payments should be made to the American Statistical Association. All material should be sent to *Amstat News*, 732 North Washington Street, Alexandria, VA 22314-1943; fax (703) 684-2036; email *advertise@amstat.org*.

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

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

Arkansas

■The Agricultural Statistics Laboratory, a unit of the Arkansas Agricultural Experiment Station, has an opening for a twelve month, non-tenure track assistant professor. A PhD in statistics or biostatistics is required. Duties include statistical and collaborative research, statistical consulting, and professional service. Information and application procedure are found at *www.uark.edu/depts/agstat*. For questions regarding the position, contact *egbur@uark.edu*. Review of applications will begin January 2, 2014. The University of Arkansas' Division of Agriculture is an equal opportunity, affirmative action institution. All applicants are subject to public disclosure under the Arkansas Freedom of Information Act and persons hired must have proof of legal authority to work in the United States.

California

■Department of statistics accepting applications for tenured/tenure-track open rank faculty position. Requires PhD in statistics or related field, research interest in statistical methodology, theory or computing for problems involving large/massive and complex data. Candidates with demonstrated interests in scientific applications in bioinformatics, biomedical imaging, or genomics are encouraged to apply. Application review continues until filled. See *www.stat.ucdavis.edu/employment/academic* for more information. Apply at *https://recruit.ucdavis.edu/apply/JPF00083*. University of California, Davis is an affirmative action/equal employment opportunity employer and is dedicated to recruiting a diverse faculty community. We welcome all qualified applicants to apply, including women, minorities, individuals with disabilities and veterans.

■Biosense Webster, Inc (BWI), a member of Johnson & Johnson's Family of Companies, is recruiting for a principal biostatistician in our Diamondbar, California, location. A minimum of a master's degree in related biostatistics or equivalent experience is required. A PhD in biostatistics. A minimum of 7 years experience in conducting clinical study design, statistical analyses of clinical data is required. To apply, visit *www.Click2Apply.net/pynw6nj* EOE.

■Applications and nominations are invited for an assistant/associate professor of statistics at the University of California, Riverside. The position targets candidates with high quality research and strong teaching records, and general training in statistics or biostatistics. Qualified candidates must have a PhD in statistics or biostatistics or a similar statistically oriented discipline. Please visit *http://statistics.ucr.edu* for more information. The University of California is an Affirmative Action/Equal Opportunity Employer. Members of under-represented groups are particularly encouraged to apply. *http://affirmativeaction.ucr.edu/forms/eeo_survey.html* The university has family-friendly policies and is committed to accommodating the needs of dual-career couples.

Iowa

■The department of biostatistics (*cph.uiowa.edu/biostat*) in the University of Iowa College of Public Health invites applications for tenure-track assistant professor positions. Candidates with expertise in the area of statistical genomics, clinical trials, Bayesian methods, or a combination of these areas are of particular interest. See *http://jobs.uiowa.edu* (requisition #62969) for complete application information. The University of Iowa is an Affirmative Action/Equal Opportunity Employer.

Maryland

■Seeking PhD/experienced master's statisticians for Center for Devices and Radiological Health, FDA, HHS in Silver Spring, Maryland. Grapple with rich array of statistical issues in clinical trials for new technologies, from LASIK and artificial hearts to genetic tests and robotic surgery. Review statistical design/analysis issues in medical devices from invention to post-market. Email CV to Greg Campbell, *greg.campbell@fda.hhs.gov*. Identify residency/visa status in application. *www.fda.gov/cdrh/index.html.* FDA is a smoke-free environment and an Equal Opportunity Employer.

Massachusetts

■Amherst College invites applications for a position as a lecturer in statistics, with an appointment to begin in July 2014. We seek candidates who are passionate about teaching statistics to undergraduates. This is a full-time three-year appointment, with multi-year renewal contingent on successful review. Renewal is based on teaching and the other responsibilities of the lecturer. The position description can be found at *www.amherst.edu/academiclife/dean_faculty/faculty_hiring/employment.* Amherst College is an equal opportunity employer and encourages women, persons of color, and persons with disabilities to apply. The College is committed to enriching its educational experience and its culture through the diversity of its faculty, administration, and staff.

Nebraska

■Computational Sciences Strategic Team Hire - Assistant or Associate Professor. University of Nebraska Lincoln Institute of Agriculture and Natural Resources announces an available tenured/tenure-earning professorship in statistics and computational sciences. Tenure home determined on candidate expertise. Requires PhD in statistics, natural sciences, mathematics, computational sciences, engineering or related field; details/application at *http://employment.unl.edu Req* #F_130062. Review begins 1-2-2014. *employment.unl.edu Req #F_130062* The University of Nebraska has an active National Science Foundation ADVANCE gender equity program, and is committed to a pluralistic campus community through Affirmative Action, Equal Opportunity, work-life balance, and dual careers.

New Mexico

■LANL seeks postdoc to work with multi-model uncertainty quantification of climate system feedbacks. Requires PhD in statistics, machine learning or similar, plus experience in hierarchical Bayesian models, space-time analysis, dimension reduction, and R, C/C++, and/or Fortran. Apply at *http://bit.ly/IRC29835* or *http://careers.lanl.gov*, referencing vacancy IRC29835. Also email CV, three references, 1-page research interests statement, and cover letter to *nurban@lanl.gov* (subject line: Statistics Postdoc). *careers.lanl.gov* Los Alamos National Laboratory is an EOE.

New York

■Columbia University - The department of statistics invites applications for multiple positions at the rank of lecturer in discipline in statistics to begin July 1, 2014. These are full-time appointments with multi-year renewal contingent on successful reviews. A PhD in statistics or a related field is required. See our web page *http://www.stat.columbia.edu* for the application process. *www.stat.columbia.edu* Columbia University is an Equal Opportunity/Affirmative Action employer.

■The department of mathematics at Pace University invites applications for an anticipated tenure-track position at the rank of assistant professor beginning fall 2014. A PhD in mathematics or statistics is required. All applications should be sent to *mathsearchplv@pace.edu* or mailed to Mathematics Search Committee, C/O Mathematics Chair,

Pace University, 861 Bedford Road, Pleasantville, NY 10570. EOE.

■Memorial Sloan-Kettering Cancer Center (New York) is seeking a doctoral-level biostatistician with an interest in collaborative research in important problems in cancer research to join an existing group of 35 biostatisticians (19 faculty and 16 research staff; *www.mskcc.org/biostat*). Send CV and contact information for three referees to Alexia Iasonos at *wongk1@mskcc.org. www.mskcc.org/biostat.* MSKCC is an Equal Opportunity Employer.

North Carolina

■Social & Scientific Systems (Durham, NC) seeking senior statistician to lead experienced team of statisticians, bioinformaticians, biomathematicians, epidemiologists and statistical programmers. Required: PhD in statistics or biostatistics and at least 5 years of experience with analysis of biological and/or environmental health data; management experience and peer-reviewed publications. Apply online at *www.s-3.com* - see Req. # 1193. EOE M/F/D/V.

■RTI seeks an energetic leader to serve as Director of the newly formed Center for Statistical and Data Sciences. The director will help to shape more than 90 statisticians and data scientists to compete in both established and emerging markets. A PhD in statistics and 15+ years experience (or equivalent) plus business development experience required. For additional information, visit *www.rti.org/job14881*. RTI is an EO/AA employer.

Ohio

■The Cleveland Clinic Department of Quantitative Health Sciences is recruiting for faculty and master's-level positions. Many areas are being sought, including biostatistics, health economics, health status measures, analysis of population-based registries, diagnostic test assessment, ROC analysis, and psychometrics. Details for all positions, as well as application instructions, are on our website: *www.lerner.ccf.org/qhs/jobs.* EOE.

Pennsylvania

■The Wharton Statistics Department, University of Pennsylvania, is seeking full-time, tenure-track faculty at any level: assistant, associate, or full professor, appointment beginning July 2014. Applicants should show outstanding capacity in research and teaching. Applicants must have a PhD (expected completion by June

CARNEGIE MELLON UNIVERSITY
Assistant/Associate Teaching Professor

Applications are invited for the position of Teaching Professor, rank (Assistant, Associate or Full) to be determined. The Department of Statistics, Carnegie Mellon University is seeking a passionate, master teacher to contribute to our thriving, modern undergraduate and graduate programs. The successful candidate will be expected to have a strong and successful teaching record, demonstrate excellence in statistical pedagogy, and an active research agenda. This position emphasizes teaching, student advising, curriculum development, and supervising collaborative research projects. PhD in statistics, biostatistics or related area required.

See http://www.stat.cmu.edu or email hiring@stat.cmu.edu for more details. Send CV, relevant transcripts, teaching and research statements, and three recommendation letters to:

Teaching Faculty Search Committee, Statistics, Carnegie Mellon University, Pittsburgh, PA 15213, USA or hiring@stat.cmu.edu.

Application screening begins immediately, continues until positions closed.

Women and minorities are encouraged to apply. AA/EOE.

ALL RANKS POSITION IN BIOSTATISTICS
UNIVERSITY OF MISSOURI-COLUMBIA

The Biostatistics & Research Design Unit and Department of Health Management and Informatics in the School of Medicine (SOM) seeks to fill an Assistant Professor/Associate Professor or Professor (non-tenure or tenure track) position starting Fall 2014, or possibly sooner. A PhD in Statistics or Biostatistics is required as well as a strong interest in collaborative research, and consulting in the health sciences. Teaching experience is valued. It is essential that the candidate have excellent communication skills and be prepared to assist in preparation of external grant proposals. Due to the broad range of research interests in the SOM, the position may require expertise in (but is not limited to): multivariate methods, generalized linear mixed models, complex survey analysis, structural equation modeling, experimental design, and Bayesian methods.

To apply for this position, please visit the MU web site at http://hrs.missouri.edu/find-a-job/academic/. For additional information about the position, please contact Christina Brown, SOM Office of Research at (573) 884-1410 or BrownChri@health.missouri.edu

NJIT
New Jersey's Science & Technology University

Faculty Position in Applied Statistics/Biostatistics
Department of Mathematical Sciences

The Department of Mathematical Sciences at New Jersey Institute of Technology (NJIT) seeks candidates to fill a tenure-track/tenured position at the Assistant/Associate/Full Professor level in the general area of Applied Statistics/Biostatistics. The Department is particularly interested in candidates whose research interests focus on the development and application of statistical methods for problems in topics dealing with the challenges of "Big Data" analyses, including but not limited to high-dimensional data, time series, spatial statistics, computational statistics and Bayesian statistics. Candidates with interdisciplinary interests in areas such as microarrays, environmental or climate science, neuroscience, brain imaging, energy and sustainable systems are encouraged to apply.

Candidates should have a PhD in Statistics or Biostatistics and postdoctoral experience with strong research and teaching potential for consideration at the Assistant Professor level and an appropriate record of accomplishment in classroom teaching, mentoring doctoral students and research publication and funding, at the Associate or Full Professor level. At the university's discretion, the education and experience prerequisites may be excepted where the candidate can demonstrate to the satisfaction of the university, an equivalent combination of education and experience specifically preparing the candidate for success in the position.

To apply, please go to https://njit.jobs and search using posting number 0601800. Submit a cover letter, resume/CV, research and teaching statements, overview of teaching evaluations, and names and contact information of three references. Review of applications will begin on November 15, 2013 and will continue until the position is filled. *NJIT is an Equal Opportunity Employer.*

DMS offers BS, MS & PhD degrees, with tracks in the PhD program in Applied Probability and Statistics, as well as Applied Mathematics. Many opportunities exist for collaboration with biostatisticians and clinical researchers at the nearby Rutgers Biomedical and Health Sciences, the Public Health Research Institute and the International Center for Public Health, all within walking distance of NJIT. For more information about DMS faculty and programs, visit http://math.njit.edu.

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30, 2015, is acceptable) from an accredited institution. Please visit our website to apply: *https://statistics.wharton.upenn.edu/recruiting/facultypositions*. Questions should be sent to *statistics.recruit@wharton.upenn.edu.* The University of Pennsylvania is an equal opportunity affirmative action employer; women and minority applicants are strongly encouraged to apply.

■Possible tenure-track and visiting positions. Collegial environment emphasizing disciplinary and cross-disciplinary research and teaching. All areas of statistics welcome. Joint appointments possible with other units in the Pittsburgh area. See *www.stat.cmu.edu* (email:*hiring@stat.cmu.edu*). Send CV, research papers, relevant transcripts, and three recommendation letters to: Faculty Search Committee, Statistics, Carnegie Mellon University, Pittsburgh, PA 15213, USA. Application screening begins immediately, continues until positions closed. *www.stat.cmu.edu.* Women and minorities are encouraged to apply. AA/EOE.

Texas

■Sam Houston State University Dept. of Mathematics and Statistics invites applications for a tenure-track asst. professor position in statistics beginning fall 2014. Requirements: PhD in statistics, excellent communications skills, strong commitment to quality teaching, scholarly and research activities, and service. Applicants must submit a cover letter, CV, teaching statement, research statement, and three letters of reference online at *https://shsu.peopleadmin.com/postings/8907*. Sam Houston State University is an Equal Employment Opportunity/Affirmative Action Plan Employer and Smoke/Drug-Free Workplace.

Virginia

■University of Virginia Division of Translational Research and Applied Statistics seeks tenure-eligible, assistant professor. Requirements: PhD in biostatistics/statistics, excellent oral and written communication skills. Experience in the analysis of laboratory data and experimental design; teaching; and grant writing preferred. To apply, visit *https://jobs.virginia.edu* and search on Posting Number 0613020. Complete a profile online, attach a cover letter, curriculum vitae and contact information for three references. The University of Virginia is an Equal Opportunity/Affirmative Action employer. Women and members of minority groups are encouraged to apply.

Wisconsin

■The Zilber School of Public Health, University of Wisconsin, Milwaukee, seeks a tenure-track assistant professor in biostatistics, beginning in fall 2014. Priority will be given to candidates with research interests in longitudinal and multilevel data analysis, network analysis, or spatial statistics. Apply online at *http://jobs.uwm.edu/postings/16459*. Review process will begin on Feb. 1, 2014, until the position is filled. UW- Milwaukee is an AA/EEO employer and is committed to increasing diversity in recruitment and retention, and advancing our university as an inclusive, caring, and accessible destination campus for all people.

■The Division of Biostatistics at the Medical College of Wisconsin in Milwaukee seeks a dynamic biostatistician with a strong record of methodological and collaborative research to be its leader in the position of director. The division includes 11 faculty, a PhD program, significant NIH funding, and growth opportunities. See *www.mcw.edu/biostatistics.htm*. To apply, email a cover letter and CV to *hmontsma@mcw.edu*. EOE.

International

■One faculty position (assistant, associate, or full professor) is available in the department of applied mathematics, National Sun Yat-sen University, beginning 8/1/2014. Required PhD in statistics or related fields. Send vitae and research interests to *head@math.nsysu.edu.tw*. Send at least three letters of reference, reprints/preprints, and transcripts to Chair, Department of Applied Mathematics, National Sun Yat-sen University, Kaohsiung 804, Taiwan, R.O.C . Website: *www.math.nsysu.edu.tw*.

■Applications are invited for a teaching-track faculty position at Carnegie Mellon Qatar in Education City, Doha. This position emphasizes undergraduate teaching primarily, but also involves a combination of course development and/or research. All areas of statistics are welcome. See *www.stat.cmu.edu*. Send CV, relevant transcripts, teaching statement, and three recommendation letters to: Search Committee, Statistics, Carnegie Mellon University, Pittsburgh, PA 15213 or *hiring@stat.cmu.edu*. Women and minorities are encouraged to apply. AA/EOE.

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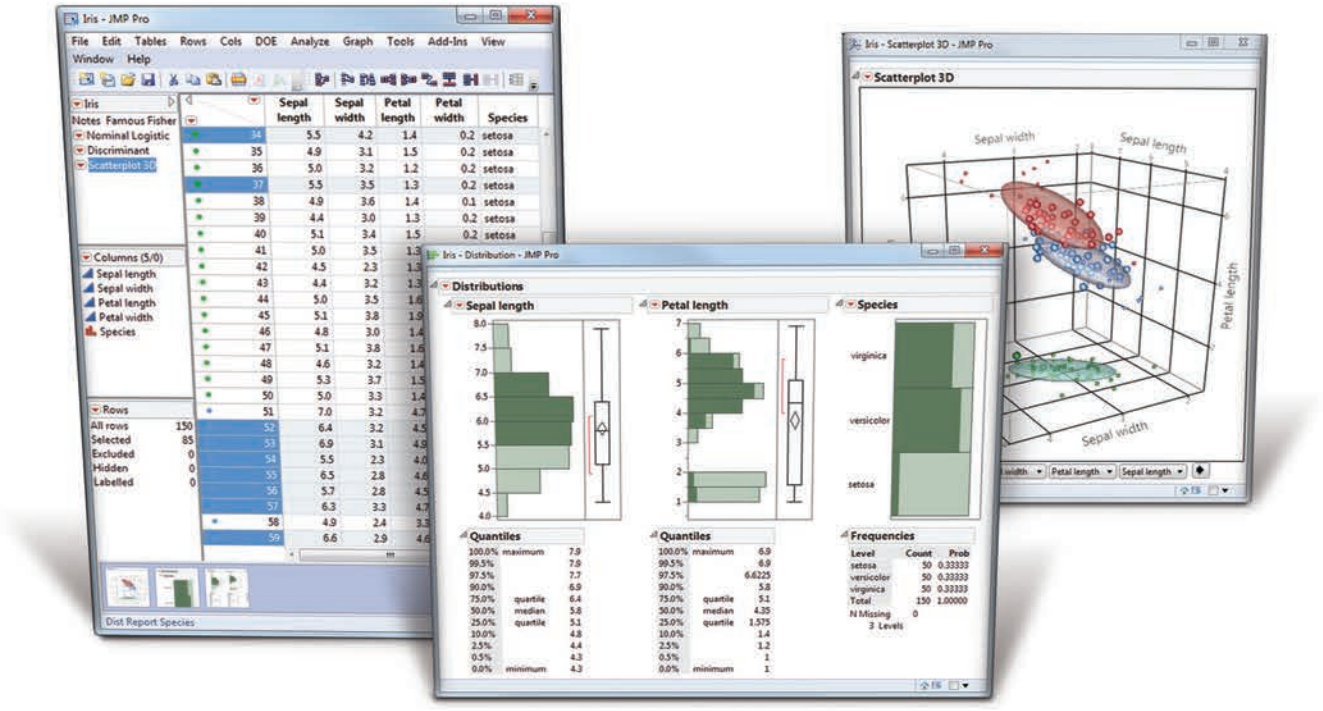

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Statistics

The newest release of SAS/STAT® software takes the breadth and depth of SAS® statistical functionality to new levels in areas ranging from missing data analysis to survival analysis to market research. Highlights include:

Sensitivity analysis for multiple imputation. Assess sensitivity of multiple imputation to the missing at random assumption with pattern-mixture models. Impute missing values under scenarios for which missing data are missing not at random.

Survival analysis for interval-censored data. Compute nonparametric estimates of the survival function for interval-censored data. Compare survival curves for different groups and display the results graphically.

Item response theory models. Use item response theory models to calibrate test items and evaluate respondents' abilities. Rasch models, graded response models, and multiple group analyses are featured along with factor score estimation.

Bayesian choice models. Use Bayesian discrete choice analysis to model consumer decisions in choosing products or selecting from multiple alternatives. Fit logit or probit models and enable individual-level inferences on product preference and price sensitivity.

Competing risk models. Analyze time-to-event data with competing risks using the method of Fine and Gray (1999) to model the cumulative incidence of an event of interest.

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