

May 2012 • Issue #419

# AMSTATNEWS

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

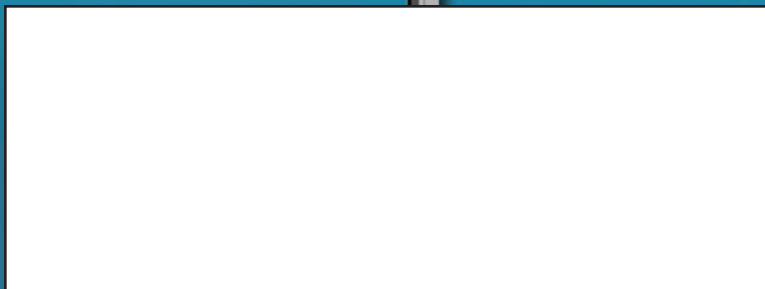


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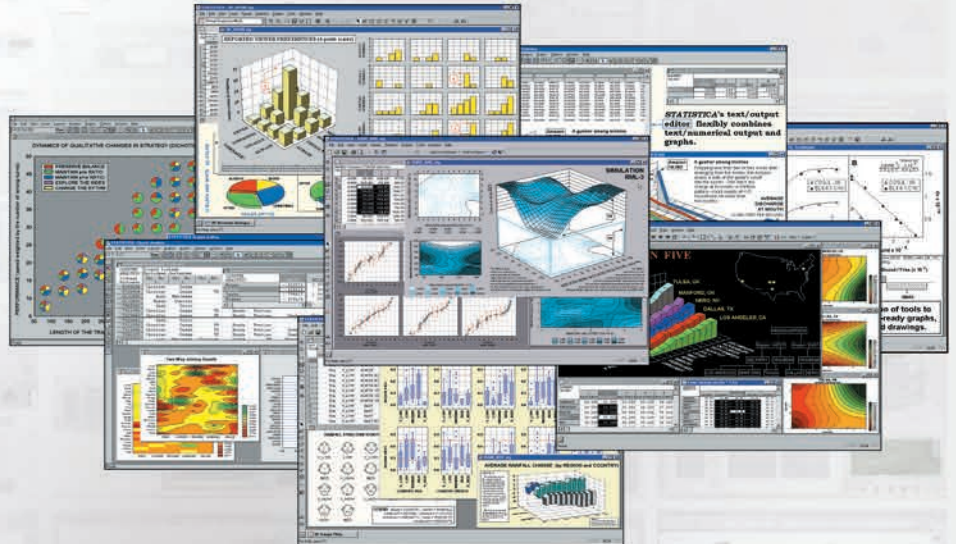
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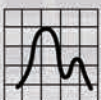
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*Amstat News* welcomes news items and letters from readers on matters of interest to the association and the profession. Address correspondence to Managing Editor, *Amstat News*, American Statistical Association, 732 North Washington Street, Alexandria VA 22314-1943 USA, or email [amstat@amstat.org](mailto: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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American Statistical Association



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

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## columns

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#### When Statistics Education and State Policy Meet

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](mailto:pierson@amstat.org).



Franklin

Contributing Editor

*Christine Franklin is the Lothar Tresp Honoratus Honors Professor in Statistics at the University of Georgia. She was the lead writer for the ASA Pre-K-12 GAISE Framework that served as the basis for the statistics strand in the Common Core State Standards. She is also a past AP Statistics chief reader and was honored in 2006 with the Mu Sigma Rho National Statistical Education Award.*

## Online Articles

The following articles in this issue can be found online at <http://magazine.amstat.org>.

**Roderick Little** will deliver the COPSS Fisher Lecture, "In Praise of Simplicity, Not Mathematistry! Ten Simple, Powerful Ideas for the Statistical Scientist," in San Diego, California, during the Joint Statistical Meetings. Little has been a leading researcher in the modeling, evaluation, and analysis of missing data, sample survey, and causal inference. At the University of Michigan, he has played important roles in various collaborative projects across campus. He currently serves as director of the biostatistics cores for three major research centers. A special article on Little's accomplishments, prepared by John Kalbfleisch and Ross L. Prentice, can be found online at <http://magazine.amstat.org/blog/2012/05/01/roderick-little>.

The National Center for Health Statistics invites you to the **2012 National Conference on Health Statistics**, to be held August 6–8, 2012, at the Renaissance Washington, DC, Downtown Hotel. Registration is open. For details, visit [www.cdc.gov/nchs/events/2012nchs](http://www.cdc.gov/nchs/events/2012nchs).

There are many places to see when you are in San Diego for JSM, some of which are an hour or more away. Therefore, members of the JSM local area committee compiled a **list of longer trips within San Diego County**. To view, visit <http://magazine.amstat.org/blog/2012/05/01/longer-trips>.

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/datetime](http://www.amstat.org/datetime).

Many of the **sections and committees** sponsor events and host workshops and meetings. For details about these events and other news, make sure you visit our section, chapter, and committee pages online at <http://magazine.amstat.org>.

## columns

### 29 **STATtr@k** Collaboration with Statisticians

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



Modlin

Contributing Editor

*Danny Modlin earned his bachelor's degree in mathematics from Elon University. After teaching middle- and high-school mathematics for six years, he earned his master's degree in mathematics from The University of North Carolina at Wilmington and his master's degree in statistics from North Carolina State University. Modlin is employed as a statistical training specialist at SAS Institute Inc. and working toward his PhD in statistics.*

### 31 **MASTER'S NOTEBOOK** Statistical Consulting in a University Research Setting

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](mailto:megan@amstat.org).



Stoddard

Contributing Editor

*Gregory J. Stoddard, a master's degree-level biostatistician, is co-director of the Study Design and Biostatistics Center at the University of Utah, which provides statistical consultations on applied research problems throughout the university.*

### 34 **175** Reaching 20k

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.

Contributing Editor

*Monica Johnston is chair of the ASA Committee on Membership Retention and Recruitment and cofounder of the Section for Statistical Programmers and Analysts. She is an independent consultant and serves as director at Mostly Math, an education services center in Walnut Creek, California.*

## member news

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Photo courtesy of the NCSU Department of Statistics

From left: Faculty members Alison Motsinger-Reif, Montserrat Fuentes, and Peter Bloomfield congratulate PhD recipient Shenek Alston at the 2011 commencement ceremony of the department of statistics at North Carolina State University.

## Graduation Time: Is Your Commencement Speech Ready?

May is graduation month, a time to celebrate the accomplishments of new graduates in the field of statistics and encourage them as they commence their careers in our profession. While few of us will have the opportunity to speak at a commencement ceremony, most of us either know students who are graduating or will soon meet a recent graduate. Each of us should be prepared with a personal commencement speech—and after reading this column, you will be ready!

### What Can You Say in 10 Minutes?

Last spring, the department of statistics at North Carolina State University invited me to give the commencement address at its annual graduation ceremony. I was asked to keep it brief, but the theme was up to me. As I thought about what to say, I realized I should know more about the students who would be in my audience, so I arranged to meet with some of them in advance. To launch the discussion, I asked each student to complete the following sentence: “My education in statistics gives me [blank].”

Their answers were insightful. One student wrote, “My education in statistics gives me the tools to approach and solve complex problems.” Another stated, “My education in statistics gives me the power to see the truth hidden behind numbers.”

When the students asked how I would complete the sentence, my answer was the word “choices.” A statistical education provides career choices, but it also requires that graduates make choices if they are to develop and contribute as professional statisticians. And so “choices” became the theme for my speech.

### Career Choices

Today, our graduates have an unprecedented range of career choices in research, government, and business. A McKinsey Global Institute report released in 2011 projects that by 2018, the United States will need 140,000 to 190,000 more people with “deep analytical” skills, typically experts in statistical methods and data analysis technologies. More recently, 46% of firms surveyed by *Bloomberg Businessweek* reported that they plan to increase their analytical talent.



Robert Rodriguez

The demand has never been greater for the 2,200 students graduating with advanced degrees in statistics. And the opportunities are just as strong for the increasing numbers of graduates with bachelor's degrees in statistics.

Our graduates are in high demand because our society is drenched in raw data. Much of the data are being collected in massive databases by government, health care, marketing, and manufacturing organizations and consist of both unstructured data—from sources such as email and social media—and structured data—from observational and planned studies. All those data must be understood, analyzed, and translated into the bases for scientific discovery, government policymaking, and business decisionmaking.

Managers and executives who hire statisticians tell me they are impressed with the core statistical skills of our new graduates. But they always add that their main problem is finding statisticians who can not only analyze data, but also explain to others how the results serve the goals of their organization.

### The Choice to Communicate

Our students discover in their consulting courses that the language of statistics does not easily translate into the languages of other disciplines. And wherever their careers take them, they will find that statistics is an interdisciplinary activity. So if the future contributions of our graduates are to be valued and visible, they must choose to improve their abilities to write effectively and to give presentations that are clear, concise, and relevant to their audiences. This can require years of practice and coaching, but it is an investment with huge long-term dividends.

### The Choice to Belong

Graduates also must choose whether to become professional statisticians. That means far more than adding the word statistician to a LinkedIn profile. It means keeping up with new developments in the field. It means participating in the growth of the field—through research, teaching, or statistical practice. It means leading and influencing others. It means adhering to ethical standards and principles of sound practice. And it means belonging to a community of statisticians who have common interests, values, and goals.

The world's largest community of statisticians is the American Statistical Association, and more than 4,500 of our members are students. Graduation is the perfect time for these students to make our association their permanent professional home.

### The Choice to Give

New graduates also must choose whether to give back and “pay it forward.” We need to challenge

graduates to contribute time and energy as active members of our chapters and sections (see Page 34 for Monica Johnston's 175th column). By starting now, they will have the opportunity to join our celebration of the ASA's 175th anniversary in 2014. And when we celebrate our 200th anniversary in 2039, today's graduates will look back on a quarter century in which they have learned much, enriched our profession, and benefited society in ways we cannot imagine.

For new graduates, the choice to give also means contributing to their institutions of higher learning as a means of paying forward to the next generation. Graduates should realize that only a fraction of the cost of their education was covered by the tuition their families paid or the work they did as teaching assistants. The majority of that cost was covered by other sources, including the institution, government appropriations, research grants, and alumni giving.

Graduates can begin to make this choice by thanking their professors for their commitment to education. As they progress in their careers, graduates should keep in touch with the faculty because teachers are always gratified to know about their students' accomplishments. And once they have the means to do so, graduates should contribute financially to their institutions and serve as mentors for future students.

### Consequence of Wise Choices

The choices to communicate, belong, and give require effort and dedication, but bring great rewards:

Graduates who choose to improve their communication skills will go beyond analyzing data and building statistical models. They will make their work relevant for the rest of the world.

Graduates who choose to become professional statisticians will do more than earn a good living. They will develop their abilities, enrich the field of statistics, and contribute to society.

Graduates who choose to give back will reap more than personal accomplishments. They will gain a share in the future success of their institutions and our profession.

### Choosing Your Own Words

When it comes time to give your own commencement speech to a new graduate, I hope you will express the enjoyment and excitement you have experienced in your career as a statistician. Nothing could be more encouraging!

*Robert W. Rodriguez*

# Highlights of the March 2012 ASA Board of Directors Meeting

ASA President Bob Rodriguez conducted his first meeting as board chair, leading board members through an agenda guided by the ASA's strategic plan. The board met March 30–31 at the ASA office in Alexandria, Virginia. Here are the highlights:

- The board approved editorial appointments for several of its journals (*JASA*, *JBES*, *JCGS*, *JNPS*, *SADM*, and *Technometrics*). New editors will officially assume their roles in 2013, though the actual transition begins later this year.
- Funding proposals received through the ASA's Member Initiative Program were reviewed; several were selected to receive funds.
- The board heard the report of the exploratory committee it appointed last fall to consider whether to establish a prestigious international prize for statistics. The executive director and the Development Committee will now investigate the feasibility of raising funds for such a prize. The ASA is collaborating with several international societies in considering this effort.
- As always, the board heard reports from the Council of Sections Governing Board and Council of Chapters Governing Board. The COSGB reported on the allocation of invited sessions to sections for JSM 2013 and 2014. The COCGB is working on ways to interact with chapter representatives outside of JSM.
- The board had the honor of hosting Jim Crowley, executive director of the Society for Industrial and Applied Mathematics (SIAM). Crowley informed the board about SIAM and its activities. The ASA works with SIAM on a book series and new journal and interacts with SIAM through the Joint Policy Board for Mathematics.
- The 2011 audit report was received by the board. Once again, the ASA received a clean audit. The board thanked staff, especially Associate Executive Director and Director of Operations Steve Porzio, for another successful audit.
- Treasurer Keith Ord presented his regular report on the status of the ASA's finances and investment portfolio. The organization has a healthy balance sheet, and investments have continued to recover value.

## 2012 ASA Board of Directors

Bob Rodriguez (President)

Marie Davidian (President-elect)

Nancy Geller (Past President)

Rod Little (3rd-Year Vice President)

Mary Mulry (2nd-Year Vice President)

David Morganstein (1st-Year Vice President)

Jessica Utts (3rd-Year Council of Sections Representative)

John Bailer (2nd-Year Council of Sections Representative)

Janet Buckingham (1st-Year Council of Sections Representative)

Tom Short (3rd-Year Council of Chapters Representative)

Bonnie LaFleur (2nd-Year Council of Chapters Representative)

Nick Horton (1st-Year Council of Chapters Representative)

Ray Chambers (International Representative)

David Banks (Publications Representative)

Keith Ord (Treasurer)

Ron Wasserstein (Executive Director)

- President-elect Marie Davidian introduced her strategic initiatives ideas for 2013. She is planning efforts to encourage students to study statistics (education component of the strategic plan), increase the visibility of statistics in the science community (visibility and impact component), and address issues related to the number of concurrent sessions at JSM (meetings component). The board provided feedback to shape and sharpen Davidian's initiatives.
- The board received reports from the 2012 strategic workgroups:
  - Jeri Mulrow reported on the activities of the "In-Reach" Workgroup, which is developing materials to improve communication with members about the ASA's activities. Preliminary materials were pilot tested using board members as presenters and audience.

—Christy Chuang-Stein reported on the work of the 175th Anniversary Steering Committee. She asked for feedback about three major initiatives the committee is considering as part of the 175th anniversary activities. The feedback she received will guide future planning.

—Bob Starbuck informed the board about plans being developed by the Career Success Factors Workgroup. Four factors have been identified: presentation skills, influence skills, personality training and team building, and career planning. Starbuck said the value proposition for the ASA and its members includes developing skills that increase impact and career potential of statisticians through coursework specifically designed for them. “Train the trainer” sessions are planned for JSM.

—John Bailer updated the board on the activities of the Education Workgroup, which is developing a set of learning outcomes for terminal master’s programs leading to employment in business and government.

- The board received the annual reports of the Membership Council. David Morganstein updated the board on the activities of the committees within the council. The annual reports of the councils provide a key mechanism for the board and the many ASA committees to stay in touch with each other.
- In other committee-related activities, the board approved the creation of an ASA-AMATYC joint committee (to replace the Committee on Statistics in Two-Year Colleges), the dissolution of the Committee on Outreach Education, and the reorganization of committees related to the Conference on Statistical Practice.

## Workshop on New Developments in Econometrics and Time Series

The Collaborative Research Center “Statistical Modelling of Nonlinear Dynamic Processes” (SFB 823), supported by the Deutsche Forschungsgemeinschaft, is organizing an international workshop titled “New Developments in Econometrics and Time Series,” to be held in Rome September 10–11. The aim is to bring together renowned experts in these areas with the researchers of SFB 823 to review recent developments and initiate scientific exchange. The workshop is in part a continuation of the successful series of Brussels-Waseda seminars on time series and financial statistics.

Details and registration forms can be found at [www.statistik.tu-dortmund.de/1740.html](http://www.statistik.tu-dortmund.de/1740.html).

- David Banks, ASA publications representative to the board, reported on discussions of a subcommittee of the Committee on Publications on the future of publishing. At the suggestion of the subcommittee, the board will form a panel to consider these matters in detail.
- Ron Wasserstein updated the board on the activities under way for the International Year of Statistics, a collective effort of the International Biometric Society, Institute of Mathematical Statistics, International Statistical Institute, Royal Statistical Society, and ASA. He said hundreds of societies, universities, schools, government agencies, and businesses have already expressed their interest in participating. (See <http://statistics2013.org>.) He noted that the steering committee for Statistics 2013 is working vigorously on activities to kick off and wrap up the International Year of Statistics.
- The board continued its discussion of the ASA as the “big tent for statistics,” regarding the development of a better understanding of the diversity of statisticians in the ASA and how to meet their needs. This discussion started at JSM and has continued since. During this meeting, the board:

—Approved a statement on the importance of continuing professional development (CPD) and the role of the ASA in providing it. The statement will appear on the ASA website soon and in a future *Amstat News* issue.

—Created, in conjunction with the statement, an ad hoc group to more fully explore the ASA’s role and activities in CPD.

—Reviewed the purpose and function of the SPAIG Committee and discussed how to better formulate statistical partnerships among academe, industry, and government.

—Heard remarks about “big data” and the roles statisticians and our association should play in the big data era. Sallie Keller, Stephanie Shipp, Sastry Pantula, and Bob Rodriguez offered various perspectives.

—Steve Pierson, ASA director of science policy, updated the board on activities related to science and statistical agency budgets, climate change, forensic science, statistics for congressional staff, and more.

The board next meets on June 22 in Alexandria for its annual budget meeting. ■



# Call for Proposals for SAMSI Summer Programs and Workshops

Richard Smith, SAMSI Director

The Statistical and Applied Mathematical Sciences Institute (SAMSI) announces a new call for proposals to organize a 2013 summer program or workshop focused on a topic within the broad spectrum of new or recent research themes covered by SAMSI. A summer program is a 1–2-week research program that is consistent with the SAMSI core theme of bringing together statisticians, applied mathematicians, other mathematical scientists, and researchers in other disciplines, though it is not necessary for every proposal to include all these elements. A workshop is typically 2–3 days and focused on a specific topic.

A summer program or workshop can form the seed from which a future year-long program develops. Therefore, a summer program or workshop offers an opportunity to develop a new SAMSI research theme without the workload required for a year-long program.

To apply, prepare a document of roughly 3–5 pages that includes the following:

Title and nature of proposed activity (e.g., whether it is a two-week summer program, one-week summer program, or workshop of 2–3 days)

Names and affiliations of the organizing committee members

Rationale and objectives of the program or workshop

Leading researchers whom the program is expected to involve (commitments from specific individuals are encouraged, but not required)

Brief outline of how the program or workshop will be structured

The program or workshop will take place at SAMSI, and the final number of participants should be fewer than 50. The proposal should be sent to [summercompetition@samsi.info](mailto:summercompetition@samsi.info) by July 27.

Proposals will be evaluated by the SAMSI directorate, which may contact the applicants for further information. A decision should be made by the end of September. Once a proposal is accepted, the SAMSI directorate will work closely with the organizing committee members on further development of the



program or workshop, including budgeting, local arrangements, and the coordination of invitations. All organizational arrangements will be made by SAMSI.

For more information about SAMSI, visit [www.samsi.info](http://www.samsi.info). Reports from past programs (including summer programs) can be downloaded from [www.samsi.info/pgm-rpts](http://www.samsi.info/pgm-rpts). ■

## Webinar Series Sponsored by Quality & Progress and the Section on Physical and Engineering Sciences

**TITLE:** Flexible and Powerful Approaches to Process Optimization using Bayesian Methods

**PRESENTER:** John Peterson (GlaxoSmithKline)

**DATE AND TIME:** Wednesday, June 20, 1:00 p.m.- 3:00 p.m. Eastern time

### DESCRIPTION

Bayesian methods provide straightforward solutions to important process optimization problems that are difficult to solve outside of the Bayesian approach. The Bayesian approach has provided published solutions to multiple-response process optimization with or without noise variables. The Bayesian approach has also provides model-robust solutions to process optimization by way of Bayesian model averaging. A recent paper by Edwards and Fuerte (2011) provides a solution to the multiple-response ascent direction problem. Recent research on hierarchical models has application to multiple-response split-plot and multi-batch experiments for process optimization.

### CONTACT INFORMATION

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# Chapter, Section Microsites a **NEW** ASA Benefit



A new benefit of ASA membership is the microsite component of the ASA Community, which allows chapters and sections to create a website for public use free of charge. Recently, the Kansas-Western Missouri Chapter (<http://community.amstat.org/KWMChapter/Home>) created a microsite after viewing the Chicago Chapter's site ([http://community.amstat.org/Chicago\\_Chapter/Home](http://community.amstat.org/Chicago_Chapter/Home)).

"Our previous web page supported by the ASA was neither administrator friendly nor very attractive," said Ananda Jayawardhana, Kansas-Western Missouri Chapter representative. "We started with a standard template and customized it to our chapter needs. ... Maintenance of the new web page is very easy, and only a few emails were sent back and forth to get all this done."

The microsite feature is becoming popular due to its functionality and easy set up.

Microsites start with a standard template, but can be customized to a chapter or section's needs, look, and feel. If there is a specific image or logo associated with a chapter or section, it can be incorporated into the site through a banner, and all the information on the previous website can be migrated. After the microsite is set up, chapters and sections can add or update content independently to suit their needs.

Microsites serve as a great tool for informing the public of news and events. To take advantage of this, all news items, announcements, and events posted in a chapter or section's community will be posted to its microsite automatically.

For more information about this member benefit or to get started now, contact Rick Peterson, Continuing Education and chapters and sections associate, at [rick@amstat.org](mailto:rick@amstat.org). ■

## Leading Economic Forecaster Chosen as Economic Luncheon Speaker



The ASA's Business and Economic Statistics Section recently recruited Edward Leamer to be this year's Economic Outlook Luncheon speaker. Leamer is the Chauncey J. Medberry Professor of Management, professor of economics, and professor of statistics, as well as former chair of the economics department at the University of California, Los Angeles. He is the author of more than 100 articles and several books, including *Macroeconomic Patterns and Stories* and, most recently, *The Craft of Economics*.

As the director of the well-respected UCLA Anderson Forecast, Leamer is uniquely qualified to speak on the economic outlook. For 50 years, the UCLA Anderson Forecast has provided forecasts for the economies of California and the United States and is recognized as one of the most accurate and reputable independent sources of U.S. economic forecasts available. Leamer is thus both a leading economic forecaster and a leading academic researcher in economics and econometrics.

The luncheon, sponsored by the Business and Economic Statistics Section, will be held in San Diego, California, on July 31. The fee to attend is \$40 and includes a meal. To register, visit [www.amstat.org/meetings/jsm/2012](http://www.amstat.org/meetings/jsm/2012).

# Petitions Requested for New Section

In his book, *Statistics on the Table: The History of Statistical Concepts and Methods*, Stephen Stigler wrote, “Statistics and psychology have long enjoyed an unusually close relationship—indeed more than just close, for they are inextricably bound together.” The same is true of statistics and education, in part because psychology and education are closely related. In an effort to embrace this shared tradition of statistics and measurement in psychology and education, a new ASA section, tentatively titled Statistics and Measurement in Psychology and Education, is being considered.

The section, if approved, will allow ASA members to cooperate with other ASA sections and related professional organizations to advance, discuss, understand, and publicize advances in statistics and measurement as they relate to psychology and education, as well as related disciplines (e.g., sociology, management, nursing, behavioral medicine).

Some statistics and measurement issues are unique to studying psychological and educational phenomenon, and related phenomena, which will be the principal focus of the section. The scope will be broad because both psychology and education are multidisciplinary domains of study and many disciplines rely on psychological and educational theory and data in a variety of ways. At the core of the Statistics and Measurement in Psychology and Education Section will be the development, improvement, and evaluation of statistical and measurement methods that have the potential to advance research in psychology, education, and related disciplines.



One requirement for a new section is to have petitions from at least 100 ASA members saying they would join the section and actively participate in its activities. If you are interested in joining the section and participating in its activities should it be approved by the ASA, send a petition via email to Ken Kelley at [kkelley@nd.edu](mailto:kkelley@nd.edu). The email should contain the following statements and information for ASA to consider the email a signed petition:

I am currently a member of the ASA and I support the formation of the Statistics and Measurement in Psychology and Education Section.

I intend to be actively involved in the section and pay dues if the section is approved and becomes a full-fledged section of the ASA.

Member Name

Member Email Address

ASA Member #

Additionally, the name of the section is tentative. Any comments would be appreciated. ■



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# Service Accessibility Analyzed with Novel Methods in May Issue

Service accessibility is the access of a community to the nearby site locations in a service network consisting of multiple geographically distributed service sites. Existing studies have had limited scope, both geographically (e.g., towns) and temporally (e.g., a one-year period). In “Clustering Random Curves Under Spatial Interdependence with Application to Service Accessibility,” **Huijing Jiang** and **Nicoleta Serban** develop new statistical methodology to estimate and classify service accessibility patterns varying over a large geographic area and a period of 16 years. The focus of this study is on financial services, but it generally applies to any other service operation.

The paper introduces a model-based method for clustering random time-varying functions that are spatially interdependent. The underlying clustering model is nonparametric with spatially correlated errors. The authors assume the clustering membership is a realization from a Markov random field. These assumptions enable the model to borrow information across functions corresponding to nearby spatial locations, resulting in enhanced estimation accuracy of the cluster effects and cluster membership.

Several discussions and a rejoinder by the authors accompany the article, examining the relationship with other approaches for functional and spatiotemporal data and identifying possible directions for future research. The discussants are **Ciprian M. Crainiceanu**, **Ana-Maria Staicu**, **C.B. Dean**, **Cindy X. Feng**, **Gareth M. James**, **Wenguang Sun**, **Xinghao Qiao**, **Bo Li**, **Xiao Wang**, **Jiaping Wang**, **Haipeng Shen**, and **Hongtu Zhu**.

The remainder of the issue includes papers about regression, reliability, and experimental design. **John H.J. Einmahl** and **Maria Gantner** develop the “half-half (HH) plot,” a new graphical method to investigate qualitatively the shape of a regression curve. The empirical HH plot counts observations in the lower and upper quarter of a strip that moves horizontally over the scatterplot. The plot displays jumps clearly and reveals further features of the regression curve.

Two papers in reliability follow. In “Testing for Monotone Trend in Recurrent Event Processes,” **J.F. Lawless**, **C. Cigsar**, and **R.J. Cook** examine a general concept of “trend,” showing the behavior of tests can depend on the assumed definitions of “no trend” and “trend,” and on the observation periods for the processes. The paper also presents robust tests for trend across multiple processes, extends them to deal with interval-censored event times, and compares them with other well-known trend tests.

Once estimated, a statistical reliability model can help plan burn-in tests, in which every part is tested as a way of eliminating infant mortality. In “Degradation-Based Burn-In Planning Under Competing Risks,” **Zhi-Sheng Ye**, **Min Xie**, **Loon-Ching Tang**, and **Yan Shen** develop and illustrate such a planning framework for competing risks, enabling both infant mortality and normal failure modes. The failures, themselves, can be either degradation threshold failures or catastrophic failures. The authors build three degradation-based burn-in models and derive the optimal cut-off degradation levels.

The issue finishes with three papers from different areas of experimental design. The first concerns computer experiments. Computer simulators can be effective, but computationally intensive models of real systems. In such situations, experimental designs enable the efficient exploration of the input-output relationship. In “Non-Collapsing Space-Filling Designs for Bounded Non-Rectangular Regions,” **Danel Draguljic**, **Thomas J. Santner**, and **Angela M. Dean** invent a design algorithm that can fill unusually shaped regions and be non-collapsing over input dimensions that may be irrelevant. The paper demonstrates the technique in applications with constrained design regions, including a total elbow replacement and tool-coating study.

Generally, experimental designs seek to maximize information or minimize expected uncertainty. In “A Bifocal Measure of Expected Ambiguity in Bayesian Nonlinear Parameter Estimation,” **Emanuel Winterfors** and **Andrew Curtis** take a new view of this problem, developing a “bifocal” measure of ambiguity based on analyzing pairs of parameter estimates. Applicable to both linear and nonlinear models, the new measure is equivalent to expected posterior variance in the linear case and to a related measure in the nonlinear case. An earth sciences application involving the location of wave sources in a medium of inhomogeneous velocity demonstrates the method.

Experiments with factors at two levels are popular for investigating main effects and two-factor interaction effects. However, cost considerations may make it infeasible to run resolution V designs, which would enable estimation of all main effects and two-factor interactions. If some two-factor interactions are negligible, then resolution IV designs may allow estimation of all effects of interest. In “Fractional Factorial Designs with Admissible Sets of Clear Two-Factor Interactions,” **Huaiqing Wu**, **Robert Mee**, and **Boxin Tang** improve on earlier approaches to the search for such designs, using a graph representation of the design to reduce the set of designs under consideration to a more manageable size. ■

# Meet Economic Research Service Administrator Mary Bohman

**A**mstat News invited Mary Bohman of the Economic Research Service to respond to the following questions so readers could learn more about her and the agency she leads. Look for other statistical agency head interviews in past and forthcoming issues.

## What about this position appealed to you?

The opportunity to lead a principal federal statistical agency that informs critical public policy and societal issues was the major draw. Today, perhaps more than ever, the issues involving food and agriculture are central concerns of the national and international community. The challenge of feeding a growing world population is an example. ERS analyses of agricultural productivity, the role of agricultural research in productivity growth, the factors driving global food prices, and global and domestic food security have already informed policy and provide the foundation for further work to address this challenge. Our research is poised to provide objective analysis to inform other national debates as well—around the next Farm Bill, childhood obesity, renewable energy, and adaptation to climate change, to name a few.

## Describe the top 2–3 priorities you have for the Economic Research Service.

A consistent priority is for the agency to remain relevant and independent. My vision on one side of this coin is for ERS to continue to address major policy issues under the umbrella of the U.S. Department of Agriculture's (USDA) broad mission in the areas of food, agriculture, and

rural economies. That means anticipating emerging issues and providing substantive research and analysis on these issues to inform policy decisions. On the other side, it's to maintain the confidence of our customers and stakeholders in the objectivity of ERS's work.

Another top priority is to capitalize on technological developments that enhance our analytical capabilities. That includes our ability to continue generating high-quality data and models such as those used in our long-term baseline projections for the agriculture sector.

We need to raise our visibility and reach out to new customers and partners, beyond those who already value our work. Partnerships with land grant and other universities, other government agencies, and private research institutions like the Ford Foundation have been mutually enriching. Anticipating the needs and contributions of other customers and partners—being customer- and stakeholder-driven—will be a priority in the next few years.

## What do you see as the biggest challenges for ERS?

Communicating our data and findings effectively is as important as performing incisive analysis on relevant topics. The effort to communicate material clearly to an informed, but

nontechnical, audience is a consistent challenge. This year, we unveil a redesigned website that organizes and displays material for easier access to information and data.

Our communications strategy includes investment of time and resources to improve data visualization and clarity and to enhance GIS-based tools such as our Food Desert Locator and the Atlas of Rural and Small-Town America. Our new daily "Charts of Note" series demonstrates the broad range of data ERS offers. Each chart is accompanied by text to provide context—often of a policy nature. The media have taken notice, with several news articles generated by individual charts.

## How can the statistical community help you?

ERS has long recognized the importance of close links with the statistical community. These mutually beneficial contacts can lead to highly relevant policy research.

ERS and other USDA agencies, for example, collaborated with the Environmental Protection Agency (EPA) when EPA was developing regulations on animal waste management under the Clean Water Act. The USDA team provided analysis of alternative policy options. Data from ERS on livestock operators' production costs was a useful tool in evaluating cost-effective



Before becoming director of the Economic Research Service, Mary Bohman served in several positions at the agency, most recently heading ERS's Resource and Rural Economics Division. She served a detail position at the White House Office of Science and Technology Policy and was on the agricultural sciences faculty at the University of British Columbia.

## Fast Facts

Reports to Under Secretary for Research,  
Education, and Economics, U.S.  
Department of Agriculture

Website: [www.ers.usda.gov](http://www.ers.usda.gov)

FY12 budget: \$77.7 million

Staff size: 385

options for animal waste management. ERS's own research on market mechanisms of conservation used data from EPA's National Section 303(d) List of Impaired Waters.

ERS draws on data from USDA and other Federal agencies, as well as universities and private-sector sources to use in our analytical work, our forecasts, and in data products we package

for ERS customers. The Census Bureau, Bureau of Economic Analysis, Bureau of Labor Statistics, Centers for Disease Control and Prevention, and National Agricultural Statistics Service (NASS) are among the agencies whose data we use. ERS's Food Environment Atlas, which compiles geospatial data on communities' food options and health outcomes, is an example of one product incorporating data from a number of sources—in this case, to explore the interaction of multiple factors in food choices and diet quality.

### Prior to your tenure, what do you see as the biggest recent accomplishments of the agency?

The Economic Research Service has sustained its independence

and relevance, whether providing briefings to policymakers or preparing in-depth reports. And the agency has been ahead of the curve in anticipating and informing front-burner issues.

Our annual report on U.S. household food security is used by federal and state policymakers in shaping laws and programs regarding food assistance, other public assistance, and poverty. ERS, as part of the U.S. Food Security Measurement Project—a collaboration among federal agencies, university researchers, and private organizations—played a key role in developing the survey measure, which has become a national and international standard. For more than 10 years, ERS has overseen the survey—conducted by the Census Bureau—and is responsible for analyzing and publishing the results and ensuring continued reliability of the survey methodology. Each year's report is widely cited by stakeholders and the media.

I'm also particularly proud of ongoing technological enhancements in our Agricultural Resource Management Survey (ARMS). ARMS is a joint venture with NASS and the primary source of information on the financial condition, production practices, resource use, and economic well-being of America's farms and farm households. Information from ARMS is used extensively by policymakers and researchers. ERS and NASS have developed dynamic, easy to use web-based data delivery tools to expand access by customers. The two agencies are currently providing remote access to authorized users to sensitive ARMS microdata in a confidential, protected environment in collaboration with the National Opinion Research Center. ■

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# The World Is Calling; Should We Answer?

Roger W. Hoerl, GE Global Research

A watershed event in human history occurred in Copenhagen, Denmark, from May 24–28, 2004, during a meeting referred to as the Copenhagen Consensus. Bjorn Lomborg, the Swedish economist, brought together a “blue ribbon” panel, including three Nobel laureates, from around the globe to discuss the world’s greatest challenges. Rather than prioritizing problems, the panel was asked to prioritize potential solutions. Specifically, the panel was asked to answer the following question: If one had \$50 billion, how could this money best be spent to improve the human condition? Therefore, the panel had to consider not only how severe the problems were, but also what impact could be made with this level of expenditure. For example, virtually everyone is appalled by human trafficking, but what impact could be made to end it with this amount of investment?

The panel began with a list of the greatest challenges facing the world, reproduced in Table 1. They then reviewed suggested solutions that had been proposed by globally recognized authorities in each field, which included some estimate of the expected impact of their proposals. Finally, members of the panel met to prioritize the solutions, based on the impact they felt each was likely to have. In his summary of the gathering, Lomborg wrote the following:

Combating HIV/AIDS should be at the top of the world’s priority list. That is the recommendation from the Copenhagen Consensus 2004 expert panel of world-leading economists.... About 28 million cases could be prevented by 2010. The cost would be \$27 billion, with benefits almost 40 times as high....

## What Has Happened in the Battle Against HIV/AIDS Since 2004?

Interestingly, Lomborg organized a second Copenhagen Consensus meeting in 2008, at which a proposed solution to global malnutrition was the top priority. One might logically ask if perhaps HIV/AIDS is no longer a major issue, given existence of antiretroviral drugs (ARVs). Sadly, the facts paint a different picture. For example, the World Health Organization announced in 2009 that AIDS-related illnesses are now the leading cause of death globally for women of childbearing age (15–44). In the United States, AIDS is now the leading cause of

Table 1—Copenhagen Consensus, 2004

The World’s Greatest Challenges	
Global Warming	Hunger and Malnutrition
Communicable Diseases	Population and Migration
Conflicts and Arms Proliferation	Poor Governance and Corruption
Global Financial Instability	Sanitation and Access to Clean Water
Access to Education	Subsidies and Trade Barriers

death for African-American women between 25–34 years of age. Few people seem to have taken notice of these trends, sometimes referred to as the “feminization of AIDS.”

The cover story of the July 20, 2010, *New York Times* discussed a randomized trial conducted in Malawi. In this study, the treatment group of teenage girls was given \$1–\$5 per month if they stayed in school, and their parents were given \$4–\$10 per month for household expenses. The control group of girls received no money, nor did their parents. Girls were randomly assigned to groups. At the end of 18 months, the data showed that girls in the control group had an HIV infection rate 2.5 times that of the treatment group. This difference was statistically significant using any reasonable test. A jugular question that requires answering is whether this result is acceptable. Is it acceptable that a girl’s chances of acquiring HIV are in large part dependent on access to \$10 per month?

My own experiences investigating the AIDS pandemic are discussed at length elsewhere. In short, I received a six-month sabbatical from GE Global Research as part of my Coolidge Fellowship, which I used to study why AIDS seemed to defy resolution, despite the expenditure of billions of dollars, and what might be done about it. After considerable reading; interacting with AIDS activists and researchers; and spending a month traveling through Uganda, Zambia, and South Africa, my co-author, Presha Neidermeyer, and I came to a number of conclusions, including the following:

Money is necessary, but not sufficient to resolve this pandemic. It is sometimes difficult for westerners to accept that they cannot “buy” a solution to a major problem.

**Editor’s Note:** This article was adapted from the Deming Lecture, given at the 2011 Joint Statistical Meetings in Miami Beach, Florida.



Roger Hoerl speaks during JSM 2011 in Miami Beach, Florida.

Similarly, “made in America” solutions often fail outside a U.S. context. Malawi is not Kansas, and solutions that work in Kansas often simply do not work in Malawi.

This issue is not about charity, but rather about justice. While western celebrities often run charitable events to raise money for worthwhile causes and visit developing countries for photo shoots in impoverished areas, too often such efforts seem more motivated by what researchers call a “god complex,” rather than a desire for justice. A god complex is the subconscious belief that one is fundamentally superior to those in abject poverty, and because such people are typically wealthy and western, they often come as “saviors” rather than servants to the developing world.

Presha and I discuss a number of Africans we have met personally who we feel are inspirational heroes, each of whom began significant and successful efforts to address AIDS and/or poverty in their communities with no western help. Of course, western aid can enable such people to help thousands, rather than hundreds, of people, so clearly money does have an important role to play. Two such people are:

Jolly Nyeko, a woman from Kampala, Uganda, who quit a paying job to counsel adolescent victims of sexual abuse on a volunteer basis. She gradually expanded her efforts and organization to include AIDS testing and treatment, legal referrals, education, and micro-loans. Her nongovernmental organization (NGO), Action for Children, has now affected the lives of roughly 30,000 Ugandans.

Pastor Titus Sithole of Mamelodi, South Africa—a black township of about 1 million people outside of Pretoria—was publicly tested for HIV in front of his 2,000-member congregation, along with all his leaders, to make the point that AIDS is just a disease, and should not be stigmatized. This act of courage was and is virtually unheard of. Titus has subsequently opened an AIDS clinic within the community, as well as a children’s home for AIDS orphans and a primary school with approximately 450 students.

### Addressing Large, Complex, Unstructured Problems

Given the types of problems the world faces, such as AIDS and the other challenges listed in Table 1, we might ask why statisticians are not working on these problems. The short answer, of course, is that we are. I certainly want to acknowledge the outstanding work being done by statisticians around the globe who are focusing on finding solutions to cancer, AIDS, climate change, providing safe drinking water in resource-limited areas, and so on. They are doing precisely what I am suggesting. Unfortunately, I don’t think there are enough of them. We need to do more, and I think we can do more.

The types of problems listed in Table 1 are not typical textbook problems in statistics. For example, in virtually every problem in statistical textbooks, there is a correct answer that can be calculated precisely, without any understanding or knowledge of any other discipline. In other words, the problems are well defined and narrow. The same could be said of many other disciplines. While the reasons for such an approach are understandable—certainly we would not ask a Stat 101 student to solve the global AIDS pandemic—over time it creates an expectation that problems should be well defined, of manageable size, and have a “correct” answer—an optimal solution. Of course, the real world does not work this way. The unfortunate result is that researchers often walk past the critical but messy problems begging for a solution, preferring to find much smaller, less important problems that are well defined and solvable in a short timeframe.

### Science and Engineering

In January of 2010, Susan Hockfield, president of Massachusetts Institute of Technology (MIT) and member of the GE Board of Directors, gave a talk at the GE Global Research Center in Niskayuna, New York. One of the topics she spoke about was



**Table 2—Attributes of Large, Complex, Unstructured Problems**

the need for better integration between science and engineering. Loosely quoting from my notes, Hockfield stated:

Around the dawn of the 20th century, physicists discovered the basic building blocks of the universe, a “parts list,” if you will. Engineers said, “We can build something from this parts list,” and produced the electronics revolution, and, subsequently, the computer revolution. More recently, biologists have discovered and mapped the basic “parts list” of life—the human genome. Engineers have said, “We can build something from this list,” and are producing a revolution in personalized medicine.

Hockfield’s comments on science and engineering reminded me of a recent article by Xiao-Li Meng. In this article, Meng noted that Harvard had recently added a course, Stat 399: Statistical Problem Solving, to its curriculum. This is a course that, in Meng’s words “... emphasizes deep, broad, and creative statistical thinking, instead of technical problems that correspond to a recognizable textbook chapter.” This caught my attention, since the types of problems in Table 1 certainly do not correspond to a recognizable textbook chapter in any discipline.

Meng’s article also resulted in significant dialogue with a professional colleague, Ron Snee, in which we discussed how one should structure such a course as Stat 399. There does not seem to be any consensus as to how one should attack large, complex, unstructured problems. What approaches to attacking large problems should be included in the course, and how would one know they are the best methods? By what theory would we answer these questions? It seemed to us that while significant theory exists about individual statistical methods, very little theory or research has been developed on how these methods should best be linked and integrated in order to attack large problems. This line of thinking led us to conclude that the science of statistics needed to be integrated with engineering approaches, per Hockfield’s comments. That is, we think there needs to be a greater emphasis on building something of interest to society from the statistical science “parts list” of tools.

Semantics are important in this discussion, so I will define my terms. A problem need not be as difficult as world hunger to be considered large, complex, and unstructured. Snee and I developed some typical attributes of these problems, which are listed in Table 2. Science can be defined many ways, but typically refers to the use of observation

- Big payoff, mission critical problems
- Impact is broad—process performance, financial, customer, social, and environmental
- Several departments, groups, and functions are involved
- Problem has high degree of complexity involving both technical and non-technical challenges
- Multiple sources of data and information are used
- More than one statistical technique is required for solution  
Typically nonstatistical techniques are required
- Creative use of information technology is needed for success
- Long-term successes require embedding solution into work processes, typically through:  
Use of custom software  
Integration with other sciences and disciplines

and experimentation to discover, understand, and explain natural phenomena. Published definitions of engineering are typically some variation of the following: Engineering is the study of how to best use scientific and mathematical principles for the benefit of humankind. In other words, engineering does not advance scientific laws—science does—but rather attempts to develop a theory of how these laws can be better used for practical benefit—that is, how to build something of importance from the scientific parts list.

### Statistical Engineering

Based on these definitions, Snee and I defined the term “statistical engineering” as the study of how to best use statistical concepts, methods, and tools and integrate them with information technology and other relevant sciences to generate improved results. We think it is consistent with dictionary definitions of engineering, discussed above. We have further argued that the statistics profession has, in general, primarily focused on advancing statistical science—the development and application of new methods—while not recognizing that statistical engineering is the “other side of the coin” that could enable statistics to have broader societal impact.

Relating this to Hockfield’s comments, it occurred to us that while there currently is a lot of emphasis within the profession on advancing the “parts list” of statistical methods, there is considerably less emphasis on “building something of importance to society” from this parts list. I refer,

for example, to building overall approaches to problemsolving or process improvement that involve multiple methods. Certainly, there are counterexamples such as the Six Sigma methodology, but there is little theory as to how this should best be done (i.e., what works, what doesn't, and why).

Many experienced statisticians have figured this out on their own, through trial and error, and applied statistical engineering without labeling it as such. Unfortunately, this has typically been done on an ad-hoc basis, with little theory or research documented as to how such statistical engineering

approaches should be deployed. The natural result is that statisticians, even experienced statisticians, have had to “reinvent the wheel” when faced with new problems having the attributes listed in Table 2. For example, I would argue that virtually no rigorous research or accepted theory exists on how to best integrate multiple statistical tools, or how to integrate statistical and nonstatistical tools.

Since publishing a definition of statistical engineering and discussing it with statisticians in a number of venues, we have been asked one question more than any other. This question has been asked in a few ways, such as: Is statistical engineering just another term for applied statistics? Isn't this what statisticians have always done? Is this an attempt to rebrand applied statistics? These questions are certainly reasonable and to be expected, as we are using the term statistical engineering in a new way and there is a clear overlap with applied statistics. Using my own career as an example, I think I did a good job of applying the statistical methods I learned in graduate school while an intern with the DuPont Applied Statistics Group in the summers of 1981 and 1982. However, I certainly did not build anything novel from the statistical science parts list of tools; in other words, I applied individual tools to well-defined problems, but did not integrate the tools in any innovative ways to achieve breakthrough results. I did good applied statistics, but no statistical engineering.

A number of commentators have pointed out that while most academic science departments are becoming narrower and more compartmentalized, the truly groundbreaking research being conducted today is almost exclusively cross-disciplinary in nature. Addressing the large, complex, unstructured problems we currently face will require both breakthroughs in various sciences, including statistics—such as the development of newer and better statistical tools—and also the effective integration of diverse scientific methods into broader engineering approaches. The IBM computer Watson, which successfully competed on the U.S. game show *Jeopardy!* and is now being applied to problems in public health and consumer finance, is one example. Watson integrates technology from a variety of disciplines, including computational science, natural language processing, statistics, and machine learning, to name a few.

In summary, it is clear that the world has numerous complex challenges and is in need of leadership to address them. I believe statisticians can answer the call and have broader societal impact, if we choose to. A balanced emphasis on both statistical science and statistical engineering would help considerably in this effort. ■

## Nominations Sought for Deming Lecture, Noether Awards

Nominations for the 2013 Deming Lecturer Award are due July 15. The awardee will give the Deming Lecture (an invited paper) at the Joint Statistical Meetings and receive a \$1,000 honorarium, award plaque, and money for travel expenses.

To be considered for the award, an individual must have made significant contributions in fields related to those in which Deming devoted his career (e.g., survey sampling, statistics in the transportation industry, quality management, and quality improvement), or more broadly, have made significant contributions through effective promotion of statistics and statistical thinking in business or industry.

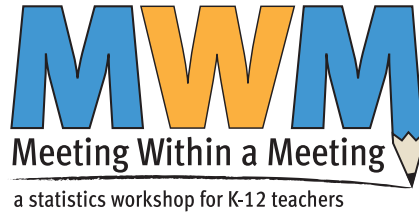
For details, visit [www.amstat.org/awards/deminglectureraward.cfm](http://www.amstat.org/awards/deminglectureraward.cfm) or contact Marilyn M. Seastrom, selection committee chair, at [Marilyn.seastrom@ed.gov](mailto:Marilyn.seastrom@ed.gov) or (202) 502-7303.

Nominations can be sent by email to ASA Executive Secretary Pam Craven at [pamela@amstat.org](mailto:pamela@amstat.org) or by mail to the ASA office, ATTN: Award Nominations, 732 North Washington St., Alexandria, VA 22314–1943.

### Noether Senior and Young Scholar

Nominations are being accepted for the 2013 Noether Senior and Noether Young Scholar awards. Visit [www.amstat.org/awards/gottfriednoetherawards.cfm](http://www.amstat.org/awards/gottfriednoetherawards.cfm) for more information and a nomination form. If you have questions, contact the committee chair, Pranab K. Sen, at [pkzen@bios.unc.edu](mailto:pkzen@bios.unc.edu) or (919) 966-7274.

Nominations should be sent before December 1 to Pam Craven in the ASA office at [pamela@amstat.org](mailto:pamela@amstat.org) or 732 N. Washington St., Alexandria, VA 22314, ATTN: Award Nominations.



# Mathematics and Science Teachers

([www.amstat.org/education/mwm](http://www.amstat.org/education/mwm))

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

- Dates: Tuesday, July 31, and Wednesday, August 1, 2012, 8:00 a.m. to 3:30 p.m.
- Place: San Diego Convention Center, located at 111 West Harbor Drive, San Diego, CA 92101 (workshop meeting room location to be announced)
- Audience: Middle- and high-school mathematics and science teachers. Multiple mathematics/science teachers from the same school are especially encouraged to attend. Note: Experienced AP Statistics teachers should register for the Beyond AP Statistics (BAPS) workshop. See [www.amstat.org/education/baps](http://www.amstat.org/education/baps) for more information.
- Objectives: Enhance understanding and teaching of statistics within the mathematics/science curriculum through conceptual understanding, active learning, real-world data applications, and appropriate technology
- Content: Teachers will explore problems that require them to formulate questions; collect, organize, analyze, and draw conclusions from data; and apply basic concepts of probability. The MWM program will include examining what students can be expected to do at the most basic level of understanding and what can be expected of them as their skills develop and their experience broadens. Content is consistent with the Common Core State Standards, GAISE recommendations, and *NCTM Principles and Standards for School Mathematics*.
- Presenters: GAISE report authors and prominent statistics educators
- Format: Middle-school and high-school statistics sessions  
One-day pass to attend activities at JSM\* (statistics education sessions, poster sessions, JSM exhibit hall)  
Activity-based sessions, including lesson plan development
- Provided: Refreshments  
One-day pass to attend the Joint Statistical Meetings  
Lodging reimbursement (up to a specified amount) for teachers from outside the San Diego area  
Handouts  
Certificate of participation from the ASA certifying professional development hours  
Optional graduate credit available
- Cost: The course fee for the two days is \$50. **Please note: Course attendees do not need to register for the Joint Statistical Meetings to participate in this workshop.**
- Follow up: Follow-up activities and webinars ([www.amstat.org/education/k12webinars](http://www.amstat.org/education/k12webinars))  
Network with statisticians and teachers to organize learning communities
- Registration: More information and online registration available at [www.amstat.org/education/mwm](http://www.amstat.org/education/mwm). Space is limited. If interested in attending, please register as soon as possible.
- Contact: Rebecca Nichols, [rebecca@amstat.org](mailto:rebecca@amstat.org); (703) 684-1221, Ext. 1877

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



# JSM BOUND

## Keynote Speakers Chosen for Knowledge, Dedication

As the ASA membership gears up for JSM 2012, those planning to attend the annual meetings must decide which sessions to attend and which activities to undertake. There are several to choose from, but the keynote addresses are special. Each speaker was chosen specifically for his or her vast knowledge of statistics and dedicated work in the field. Here, we introduce these speakers and hope you will consider attending their addresses.

### ASA Presidents Invited Address



**Alan B. Krueger**

Monday, July 30, 4:00 p.m.

Alan B. Krueger is chair of President Barack Obama's Council of Economic Advisers and a member of the Cabinet. He is on leave from Princeton University, where he is the Bendheim Professor of Economics and Public Affairs. He has held a joint appointment in the economics department and the Woodrow Wilson School at Princeton since 1987, and he served as chief economist at the U.S. Department of Labor in 1994–1995. He earned his bachelor's degree, with honors, from Cornell University's School of Industrial and Labor Relations and an AM and PhD in economics from Harvard University. Krueger was a member of the board of directors of the MacArthur Foundation and the Center for Economic Research and Graduate Education at Charles University in the Czech Republic, as well as a senior scientist for the Gallup Organization. He also is a fellow of the Econometric Society, the Society of Labor Economists, the American Academy of Arts and Sciences, and the American Academy of Political and Social Science. In addition to receiving the Mahalanobis Memorial Medal by the Indian Econometric Society and the Kershaw Prize by the Association for Public Policy and Management, he has authored or coauthored several books about economics.

### ASA Deming Lecture



**Jeff Wu**

*"Quality Evolution and Revolution: From Autos and Chips to Nano and Bio"*

Tuesday, July 31, 4:00 p.m.

Jeff Wu's research contributions span the full range of statistics, from theory to application, and touch many applied domains, from sample surveys to nanotechnology. They are notable for their combination of novelty, technical strength, and far-reaching vision. He has made especially significant contributions to experimental design. As one of his supporters wrote, "In view of professor Wu's contribution to design of experiments, it is particularly fitting for him to deliver a lecture that honors R. A. Fisher, commonly regarded as father of the modern theory of experimental design."

### ASA Presidential Address



**Robert N. Rodriguez**

Tuesday, July 31, 8:00 p.m.

ASA President Robert Rodriguez is senior director of research and development at global software firm SAS. He earned his master's and doctorate degrees in statistics from The University of North Carolina at Chapel Hill, where he also is an adjunct professor of statistics and operations research. Before joining SAS, he worked at General Motors Research Laboratories as a research scientist. He has chaired and served on a number of ASA committees, as well as committees of the North Carolina Chapter of the ASA. He is an ASA Fellow and, in 2009, received the prestigious ASA Founders Award.

## IMS Medallion Lecture I

**Yoav Benjamini***“Selective Inference”*

Monday, July 30, 10:30 a.m.

Yoav Benjamini is a professor of statistics in the Department of Statistics and Operations Research at Tel Aviv University. His areas of interest include biostatistics, statistical genetics, bioinformatics, meteorology, zoology, data mining, and quality. He has published numerous papers and is a member of the Israel Statistical Association, American Statistical Association, The Institute of Mathematical Statistics, and the Eastern Mediterranean Region of the International Biometric Society.

## IMS Medallion Lecture II

**Emmanuel Candes***“Sparse and Low-Rank Models in Statistics: Theory and Applications”*

Tuesday, July 31, 10:30 a.m.

Emmanuel Candes is the Simons Chair in Mathematics and Statistics and professor of electrical engineering (by courtesy) at Stanford University. Prior to this, he was the Ronald and Maxine Linde Professor of Applied and Computational Mathematics at the California Institute of Technology. He earned his PhD in statistics from Stanford University in 1998. His research interests are in computational harmonic analysis, mathematical optimization, statistical estimation and detection, with applications to the imaging sciences, signal processing, scientific computing, and inverse problems. Candes has received numerous awards, most notably the 2006 Alan T. Waterman Medal. Other awards include the 2005 James H. Wilkinson Prize in Numerical Analysis and Scientific Computing, awarded by the Society of Industrial and Applied Mathematics (SIAM); 2008 Information Theory Society Paper Award; 2010 George Polya Prize, awarded by SIAM; and 2011 Collatz Prize, awarded by the International Council for Industrial and Applied Mathematics. He has given more than 50 plenary lectures at major international conferences.

## IMS Medallion Lecture III

**Donald Geman***“Order Statistics and Gene Regulation”*

Wednesday, August 1, 10:30 a.m.

Donald Geman earned his BA in literature from the University of Illinois and PhD in mathematics from Northwestern University. He was a distinguished professor at the University of Massachusetts until 2001, when he joined the department of applied mathematics and statistics at The Johns Hopkins University. There, he is a member of the Center for Imaging Science and Institute for Computational Medicine. His main areas of research are statistical learning, computer vision, and computational biology. He is a fellow of the Institute of Mathematical Statistics and Society of Industrial and Applied Mathematics.

## COPSS Fisher Lecture

**Roderick Little***“In Praise of Simplicity, Not Mathematistry! Ten Simple, Powerful Ideas for the Statistical Scientist”*

Wednesday, August 1, 4:00 p.m.

Roderick Little is the Richard D. Remington Collegiate Professor in the biostatistics department at the University of Michigan and associate director for research and methodology and chief scientist at the U.S. Census Bureau. He earned his bachelor's in mathematics at Cambridge University and his master's and PhD in statistics and operational research at Imperial College, London. His research interests include incomplete data, sample surveys, Bayesian statistics, and applied statistics. His primary research interest is the analysis of data sets with missing values. An ISI highly cited researcher, he has refereed more than 170 publications, notably on methods for the analysis of data with missing values and model-based survey inference. In 2005, he received the ASA Wilks Memorial Award. To read more about Little, visit <http://magazine.amstat.org/blog/2012/05/01/roderick-little>.

# Writing Workshop for Junior Researchers to Take Place at JSM

The National Institute of Statistical Science (NISS) and the American Statistical Association will hold a writing workshop for junior researchers. The goal of the workshop is to provide instruction for writing journal articles and grant proposals. Participants will be required to provide a recent sample of their writing, which will be reviewed by a senior mentor. The sample could be a current draft of an article to be submitted for publication, or it could be an early version of a grant proposal. (Submission of the manuscript will be required as part of the registration process. Prior experience suggests that the best results come from submitting an early draft of something written solely or primarily by the participant.)

Mentors will be former journal editors and program officers, who will critique (a portion of) the submitted material. Individual feedback will be provided as part of the opening session, and participants will be expected to prepare a revision in response. The workshop will open with a one-day session of general instruction on effective writing techniques and close with discussion and debriefing at a follow-up lunch.

The full-day session is scheduled for Sunday, July 29, in San Diego, California. At the close of the formal activities, mentors will meet individually with participants to go over their writing samples. Each participant will then prepare a revision of a critiqued portion of the paper and return it to the mentor by Tuesday evening, July 31. Mentors and participants will meet again in conjunction with a lunch on August 1 to discuss the success of the revisions. The lunch program also will include general feedback to participants, mentors, and organizers.

Attendance is limited and will depend on the number of mentors available. An online application form is available at [www.amstat.org/meetings/wwjrl/registration/index.cfm?fuseaction=ShowApp](http://www.amstat.org/meetings/wwjrl/registration/index.cfm?fuseaction=ShowApp). Applications are due by June 1, and successful applicants will be notified by June 30. Applications received after June 1 will be considered if space is available. There is no fee to participate. Participants will receive lunch on Sunday, July 29, and Wednesday, August 1. They must agree to attend both the full Sunday session and the Wednesday lunch. We anticipate funding for partial travel support.



This workshop is designed for researchers with a recent PhD in either statistics or biostatistics. Top priority will go to those who have held the PhD for 0–3 years. The limited available funding will be used to support attendance by researchers at U.S. institutions. Current PhD students who are completing their degree before the end of the summer and who will be at U.S. institutions in the fall also will be considered. If space is available, researchers at institutions outside the United States will be admitted, but not provided with travel support.

For more information, contact Keith Crank at [kcrank@comcast.net](mailto:kcrank@comcast.net). ■

# How to Get the Most Out of Your First Joint Statistical Meetings

Christopher Bilder, University of Nebraska-Lincoln



Christopher Bilder is an associate professor in the department of statistics at the University of Nebraska-Lincoln. He earned his PhD in statistics from Kansas State University.

The largest congregation of statisticians in the world happens every August during the Joint Statistical Meetings (JSM). More than 5,000 people attend these meetings, which are sponsored by seven statistical societies, including the American Statistical Association. The meetings offer a variety of activities such as attending research presentations, interviewing for jobs, taking Continuing Education courses, and browsing the exhibition hall. With so many opportunities, new attendees can be easily overwhelmed by their first JSM experience.

Based on my experience attending meetings for the last 12 years and the experiences of student groups I have led, I am going to tell you how to get the most out of JSM. If you would like to share your own recommendations, I encourage you to submit a comment at <http://stattrak.amstat.org/2012/04/10/mostjism-2>.

## Before JSM

Prepare before you leave. First, you should decide whether you want to give a presentation. For new attendees who choose to present, most give a contributed presentation, which is either an orally presented paper or poster. The deadline to submit a corresponding abstract is usually February 1, and all are accepted. Additional proof of progress (e.g., drafts of a paper) for the presentation must be submitted by mid-May.

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

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

Unlike invited and topic-contributed sessions, contributed presentations are submitted individually and then grouped by JSM Program Committee members. Poster presentations (most are within contributed sessions) involve speakers being available for questions next to their displayed poster during the entire session.

Online registration for JSM begins around May 1. For members of a sponsoring statistical society, the cost is \$380 in 2012 during the early registration period. The cost increases to \$460 if you register at JSM. Registration for student members is only \$85 in 2012, and this rate is available at any time. Also starting around May 1, you can reserve a hotel room through the JSM website. A number of hotels near the convention center are designated as official conference hotels, and they discount their normal rates. However, even with a discount, you can expect to pay \$200 or more per night for a room. Most meetings also offer a less-expensive lodging option for students, usually housing at a nearby university or hostel.



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

In addition to school-based resources, many ASA sections sponsor student paper competitions that provide travel support to award winners. For example, the Biometrics Section sponsors the David P. Byar Young Investigators Award, with \$1,500 awarded to a chosen student. Most competitions require a completed paper to be submitted prior to JSM.

### At JSM

JSM begins on a Sunday afternoon in late July or early August. Business casual clothing is the most prevalent attire, but some attendees wear suits and others wear T-shirts and shorts. When you arrive at JSM, go to the registration counter at the convention center to obtain your name tag and conference program book. The program book will contain a map of the convention center that can be useful for finding session rooms.

To welcome and orient new attendees, the JSM first-time attendee orientation and reception is scheduled for early Sunday afternoon. Also, the opening mixer on Sunday evening provides drinks, hors d'oeuvres, and the opportunity to meet other attendees.

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

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

Introductory overview lectures are another type of session that has easier-to-understand topics. Recent lectures have included introductions to missing data, spatial analysis, and multiple testing. There are also many Continuing Education courses available for an additional fee. However, you can

### Important Links

Below are a number of web links corresponding to the topics described in this article:

JSM 2012: [www.amstat.org/meetings/jsm/2012/index.cfm](http://www.amstat.org/meetings/jsm/2012/index.cfm)

Program: [www.amstat.org/meetings/jsm/2012/onlineprogram/index.cfm](http://www.amstat.org/meetings/jsm/2012/onlineprogram/index.cfm)

Job seekers: [www.amstat.org/meetings/jsm/2012/index.cfm?fuseaction=applicants](http://www.amstat.org/meetings/jsm/2012/index.cfm?fuseaction=applicants)

Continuing education courses and monitors: [www.amstat.org/meetings/jsm/2012/ce.cfm](http://www.amstat.org/meetings/jsm/2012/ce.cfm)

Student paper competitions: [www.amstat.org/sections/studentpaperawards.cfm](http://www.amstat.org/sections/studentpaperawards.cfm)

attend a course for free by volunteering prior to JSM to be a monitor. Monitors perform duties such as distributing and picking up materials during the course. As an added benefit, monitors can attend one additional course for free without any duties.

Keynote addresses at JSM are usually scheduled for late afternoon on Monday through Wednesday. On Tuesday evening, the ASA presidential address is given, along with a number of awards and introductions of the new ASA Fellows. The Fellows introduction is especially interesting because approximately 50 ASA members (<0.33% of all members) are recognized for their contributions to the statistics profession.

In addition to presentations, the JSM EXPO features more than 50 companies and organizations exhibiting their products and services. Many exhibitors give away free items (e.g., candy, pens, etc.). All of the major statistics textbook publishers and software companies are there. Textbook publishers offer a sizable discount on their books during JSM, and this discount is usually available for a limited time after JSM. Software companies sometimes give away free trial editions of their programs.

The JSM Career Placement Service provides a way for job seekers and employers to meet. This service offers an excellent way to interview with many companies during a short time period. Pre-registration is required, and the fee is discounted if you register before mid-July. The service works by providing an online message center for job seekers and employers to indicate their interest in each other. Once a common interest is established, an

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Don't let what happens at JSM stay at JSM, though. The first thing I do after the meetings is prepare a short review of my activities.

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interview can be arranged during the meetings. Other activities at JSM include the following:

Shopping at the ASA Marketplace to purchase a statistics-themed T-shirt or mug

Attending an organized roundtable discussion during breakfast or lunch about a topic of interest (pre-registration is required)

Using the free Internet access at the Cyber Center

Taking a little time off from JSM to go sightseeing

### After JSM

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

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



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# San Diego Offers JSM Attendees Much to Do, See

San Diego calls itself America's finest city, and the variety of attractions and activities do make it a fine vacation destination. Following are some highlights of local things to do, as endorsed by the ASA local area committee. For more, visit the convention and visitor's bureau at [www.sandiego.org](http://www.sandiego.org). The visitor's bureau site has information about all the activities listed below. If you set the calendar to the dates that interest you, you can find many of the activities scheduled for those days.

Within walking distance of the convention center is the city's waterfront, the **Embarcadero**. Here, you can tour an aircraft carrier at the *USS Midway* Museum, visit a collection of historic ships at the floating Maritime Museum, or catch a cruise of the bay.

The historic **Gaslamp Quarter**, adjacent to the convention center, is best known for its nightlife, but features boutique shopping and great dining, too.

**Seaport Village**, catering to tourists, is also just a few steps from the convention center. It is a nice place to catch some sun and souvenir shop between sessions.

**Balboa Park**, a few minutes by car from downtown, was the site of the 1915 Pan-American Exposition and is America's largest urban cultural park. While you may plan to visit the park to see the world-famous **San Diego Zoo**, consider taking in the rest of the park, too. It contains a multitude of smaller museums, the **Old Globe Theater**, an artist village, an outdoor organ pavilion, and numerous gardens. The Prado restaurant is rated highly for outdoor dining. If you visit the zoo, set aside several hours, bring good walking shoes, and be prepared for lots of hills (unless the bus tour is more your speed). If you plan to visit the zoo and the rest of Balboa Park, allow at least two full days; alternatively, plan for a full-day speed walk.

**Coronado Island** sits in San Diego Bay and is accessible by car or ferry from the Embarcadero. It is home to one of the best beaches in America and the **Hotel Del Coronado**, where visitors can check out the hotel and shops and enjoy seaside drinks or dining at several restaurants. Coronado is a great place to get an ice cream cone and stroll along the Pacific, or rent a bike to cover more of the island. The public **Coronado Golf Course** is one of the most affordable and beautiful in the area.



Playful orangutan at the San Diego Zoo

The peninsula of **Point Loma** is home to **Cabrillo National Monument**. Here, you can catch sweeping views of the city, see a historic lighthouse, and take a short hike along the bayside trail. Another great place for a walk along the ocean is **Sunset Cliffs Natural Park**. The beach community of **Ocean Beach** boasts restaurants renowned for their burgers and fish tacos.

**Old Town San Diego** is convenient to the convention center via trolley. The **Old Town State Historical Park**, housing many buildings from the early days of the city, gives a glimpse of 19th-century life in San Diego. Visitors can catch tours and demonstrations and find more souvenir shops here. Old Town has a high concentration



San Diego Cityscape. Convention center is in the foreground



### More ...

**Museums:** [www.sandiegomuseumcouncil.org/museum\\_directory](http://www.sandiegomuseumcouncil.org/museum_directory)

**Queen Califa's Magical Circle:** Niki de St. Phalle sculpture garden in Kit Carson Park, Escondido: [www.queencalifa.org/MagicalCircle.pdf](http://www.queencalifa.org/MagicalCircle.pdf). Admission is free. Hours are 9 a.m. to sunset daily. It is most convenient if you visit this on a trip to the San Diego Safari Park or another site in Escondido. (760) 839-4691.

**Niki de Saint Phalle's statuary:** Displayed outdoors in San Diego. For locations: [www.queencalifa.org/SanDiego.pdf](http://www.queencalifa.org/SanDiego.pdf). The face on the convention center grounds, titled "Coming Together," is by her.

**Maritime Museum of San Diego:** Open daily 9 a.m. to 8 p.m. Independent of the *USS Midway*.

**USS Midway:** Retired aircraft carrier with about 20 aircraft on deck. Open daily 10 a.m. to 5 p.m.

**Visions Art Museum:** The Art of the Quilt: [www.quiltvisions.org](http://www.quiltvisions.org). Admission is \$5; children under 12 are free. Open Tuesday through Sunday from 10 a.m. to 4 p.m.

of Mexican restaurants and cantinas. Southern California's history is deeply entwined with that of the missions that dot the coast. California's first mission, **Mission San Diego de Alcalá** (restored), is a few miles east of Old Town in **Mission Valley**.

**Mission Bay** is the site of **Sea World San Diego**, a marine life adventure park where guests can find rides, shows, exhibits, animal encounters, and nightly fireworks. Mission Bay also offers miles of waterside trails and is a good place to try out kayaking or paddle boarding away from the crashing ocean waves. Head up to the cross on **Mount Soledad** for a beautiful city view; it's a nice place to see the city lights at night.

The city of **La Jolla** has a great deal to offer visitors. The village has high-end shopping and dining, while you can get a close-up view of the sea lions and harbor seals at the **Children's Pool** in the cove. **La Jolla Shores** is another great family-friendly beach you may want to consider for a kayak tour or surfing lesson. Here, you may be able to snorkel with the leopard sharks that are often by shore in early August. The **Scripps Institute of Oceanography's Birch Aquarium** is nearby. Also nearby is the **University of California, San Diego**, which has diverse art scattered around the open areas of the campus, a spectacular library building, and sculpture gardens.

North of La Jolla is **Torrey Pines**, famous for its golf course and the location of a state park with a gorgeous beach and hiking trails. Those looking for a longer hike should head here. Adventurous souls may want to check out the glider port, where you can ride tandem with an experienced paraglider. The less adventurous may enjoy watching the colorful sails floating and swooping along the coast.

Hikers looking for more elevation may want to visit **Mission Trails Regional Park** for a morning or evening hike up **Cowles Mountain**.

If you enjoy exercising your knowledge of probability at the track, JSM overlaps with racing season at **Del Mar Racetrack**, "where the turf meets the surf." The track, opened by a partnership between Bing Crosby and friends sits on **Los Peñasquitos lagoon**.

Being on the Pacific coast, San Diego offers many opportunities for boating. Short harbor cruises originate at the **Maritime Museum**, about a 20-minute walk north from the convention center. Longer cruises, whale-watching, and sport fishing trips originate at **Point Loma**, about a five-minute cab ride from the convention center, just west of the San Diego Airport. ■

## SCIENCE POLICY

# When Statistics Education and State Policy Meet

Christine Franklin, Lothar Tresp Honoratus Honors Professor in Statistics at the University of Georgia

*Through the passionate efforts of Christine Franklin, Georgia now includes statistics throughout its K–12 performance standards. For this month’s science policy column, Franklin responds to the following questions, sharing her experiences, challenges, lessons, and observations. She also shares her advice to those seeking to have more statistics in their state’s education curriculum.*

~ Steve Pierson, ASA Director of Science Policy

## We understand you were instrumental to the Georgia Department of Education including statistics in their K–12 curriculum standards. How did you get the ear of the GA DoEd people and convince them?

In the early 2000s, Georgia began the process of reviewing and rewriting the state mathematics standards. When the GA Department of Education released the draft K–12 mathematics standards (called the *Georgia Performance Standards [GPS]*) for review, I read the standards and was surprised at what were being called the statistics and probability standards, especially at the high-school level. I was seeing mathematics topics such as Venn diagrams, sequences, and series placed under the statistics standard. There was no indication of the statistical investigative process and how to carry out this process.

Fortunately, one of my mathematics education colleagues during that time at UGA, Brad Findell, was a member of the writing team for 6–12. He understood the need for improvement in the statistics strand and advocated to the 6th–12th advisory committee that I be invited to speak. I was asked to travel to Atlanta and give a two-hour presentation.

Also fortunate at that time, the ASA Pre-K–12 Guidelines for Assessment and Instruction in Statistics Education (GAISE) Framework Strategic Initiative was approved by the ASA Board and made public on the ASA website. I was able to use this document as the basis for my presentation in explaining what is meant by statistical thinking and the importance of all high-school graduates being able to use sound statistical reasoning. I advocated that the statistics standards be rewritten for 6th–12th.

The advisory committee of dedicated teachers and leaders in mathematics embraced this challenge and asked that I join a subgroup of writers to rewrite the statistics standards. The ASA Pre-K–12 GAISE

Framework was the basis for the resulting statistics standards that appeared in the new *GPS* for mathematics. The statistics strand was considered one of the major strands of the *GPS*. Georgia became a leading state for the inclusion of statistics and probability at K–12. The implementation for the new *GPS* began in the 2005–2006 school year.

## What were the main hurdles you faced in urging the state to include statistics?

The main hurdle was convincing the committee that the curriculum needed more statistical topics while maintaining a balance of the necessary mathematical topics. Part of the justification for this balance was to let data motivate the teaching of many mathematical topics. Statistics is a natural way to teach integrated mathematics supporting and complementing good mathematical reasoning. The GA high-school curriculum was built around integrated mathematics.

A second hurdle was educating the writers that statistics was NOT the mathematical probability traditionally seen in K–12 mathematics textbooks.

## Once statistics was included in the state curriculum standards, what challenges did you encounter?

I discovered that most teachers had received training in only the very basics of statistics (or no statistics at all). It became a personal campaign to help teachers teach at a level that was higher than simply computational skills. It was also important to help our teachers understand the statistical investigative process and the learning progression of statistical concepts (such as the mean interpretation and variation from the mean at different grade levels). These are big ideas promoted by the GAISE Framework.

There was also the issue of teachers searching for ready-made resources in teaching the statistics

## Science Policy Actions

The ASA signs onto letters in support of FY13 budgets for the U.S. Census Bureau, BEA, BTS, EIA, ERS, and NASS.

The ASA executive director gives testimony to House Commerce, Justice, Science Appropriations Subcommittee in support of budgets for NSF, Census Bureau, BEA, BJS, and forensic science at NIST.

The ASA signs letters expressing concern for making the American Community Survey voluntary.

standards. Helping teachers find these resources in an efficient way and to use these resources also became a personal campaign.

Finally, there were simply not enough statisticians involved with assisting in the rollout of the new *GPS* and the statistics standards.

## How did the increased statistical content in the standards affect state assessments and professional development of Georgia teachers? How were you involved in these efforts?

The statistics frameworks (tasks) written for teachers to use in their classrooms have not always been of the ideal quality with respect to statistical reasoning. The state department was challenged with finding individuals familiar with the philosophy of the GAISE Framework to write these frameworks. The tasks have tended to focus more on probability than data analysis. The statistics items on the state assessment tests have some of the typical skills-based questions, but an effort has been made to ask more conceptual statistical questions.

Professional development has been huge. For the past six years, I have traveled all over the state of Georgia and taught many professional development workshops (some week-long in the summers and several one-day workshops during the school year). My colleague, Gary Kader at Appalachian State University, assisted me with the summer workshops. I have also provided support to the math specialists at the Regional Educational School Agencies (RESA) in Georgia. I have been fortunate to work with fabulous math specialists who then carry on the professional development of statistics within their RESA's and local schools. The University of Georgia also has a mathematics curriculum team consisting of two mathematicians, three mathematics educators, two statisticians, two master teachers, one high-school math specialist, and one educational psychology assessment expert who meet once a month to work toward the improved preparation of the pre-service teachers and the professional development of

the in-service teachers. I have learned much from my colleagues being on this committee and working in a collaborative effort.

## What are you experiencing as a result of statistics being part of the GA state curriculum standards?

An exhilarating exhaustion! It has been rewarding to see where our committed teachers have progressed in the past few years, growing in confidence over teaching the statistics curriculum. It is fulfilling to hear the consistent comment that the students are most attentive when statistics is being taught, and the teachers now understand the importance of the students becoming statistically literate. The teaching of statistics is becoming part of the teachers' belief system.

## What is the impact, if any, of *Common Core State Standards (CCSS)* including substantial statistics content in grades 6–12?

A big impact, since most states currently include very little in the way of statistics content. There is going to be a tremendous need for professional development nationwide in statistics. For Georgia, *CCSS* seems to have less statistics than the *GPS*. But, hopefully, GA will use part of the 15% flexibility to keep all of our current statistics standards—most especially what we have at K–5. The writers of *CCSS* elected not to include statistics at K–5.

## What advice would you have for others interested in urging their state to include more statistics in their state education standards, improve the statistics questions on the state assessments, or get involved with professional development efforts? (How does *CCSS* fit in?)

If you are in an academic setting, make connections with colleagues who have interaction with the state department of education. Be willing to volunteer to serve on test-writing committees, advisory committees, or as the writer of statistics resources for teachers. Although this work on top of the regular job commitments can be a time challenge, my work with the teachers, RESAs, and state department in GA has been some of the most rewarding in my professional career. It is the leaders and teachers at K–12 that will make the difference in spreading statistical literacy to our children. There is no better reward. ■

STATtr@k

# Collaboration with Statisticians

Danny Modlin, SAS Institute Inc.

Researchers and statisticians exist in a symbiotic world of learning and discovery. To complete degree requirements, researchers are required to complete an introductory statistics course, as statisticians are required to take science courses. You, as a researcher, are an expert in your fields, as we, as statisticians, are in ours. So how do we get experts in diverse specialties to find common ground so our team can quickly achieve a mutual understanding of the problem at hand and effectively pursue a solution?

Fortunately, as a statistics student at North Carolina State University (NCSU), I was exposed to an effective collaboration method thanks to NCSU's statistical consulting course. Students and faculty across campus could connect to our departmental web page and request statistical assistance with their projects or research. Students in the consulting class then met with the requesting individuals and assessed their problems. To assist me in writing this article, I asked two NCSU faculty members—Jason Osborne and William Hunt—for their input about collaborations. The following are a few viewpoints I gained from them and the consulting course.

## Don't Wait Until the End to Ask for a Statistician's Assistance

There are many who think they are fully capable of performing the statistical analysis needed to solve any of their problems with their brief introduction to statistics, and there are some statistical topics that researchers can tackle without issue. However, both Osborne and Hunt agree that a statistician should be involved as soon as possible.

"If an experiment is to be undertaken and the design is not simple, then the statistician should be included as early as possible," said Osborne. Hunt stated, "The statistician [should be] trained to be a team member from the very beginning."

Getting a statistician involved at the end of a project could result in, "I'm sorry, but the data you collected will not be able to answer your question(s) of interest." The hassle of going back to square one with just weeks left before a deadline is an unwanted complication to a researcher. For this reason, statisticians should be a part of your projects from the beginning. We can assist in designing the experiment and ensure the proper tests are performed under validated assumptions.



## Communication Is Key

During typical daily interactions, most would agree that communication skills are something we all have the chance to practice. Whether it be telling a joke, catching up on what you did over the weekend, or giving directions to some location, the goal is to be able to convey your thoughts to someone else in such a way that they can understand. With all this practice, why is communication between researchers and statisticians sometimes difficult?

I posed the question, "What is the most important thing that a researcher could do that would ease their collaboration with statisticians?" to both NCSU faculty members. Osborne replied, "Communicate clearly. Explain things in basic terms. Explain the big-picture first and then get into details about sampling or experimental designs."

I would concur with this. I have had collaborations in which my customer's first question was a design question. I first asked for an overview of the project/experiment and the question(s) to be answered. I would like to add that everyone involved needs to remain patient. You may have to explain a concept a couple of times, but that repetition will aid the statistician in their understanding of the problem and better enable them to solve your problem. A 'good' statistician, as I see it, is one who repeats back to the researcher, in his/her own words, their understanding of the problem. A 'good' researcher ensures that this statement

conveys the problem accurately. Your patience will pay dividends later.

Are there specific concepts researchers need to know that would assist in collaboration? Hunt said, "It would be helpful if they had both introductory statistics and a course in the design of experiments."

I definitely agree with the design of experiments suggestion. As a student at NCSU, I took our design of experiments course and was pleasantly surprised to see that the majority of students were not from the statistics department. When the semester began, I was unsure of how this balance of students would determine the focus of the course. It made the course one of the best I had the opportunity to take at NCSU. Each student benefited from other's diverse backgrounds. From the statistics perspective, we saw real-world applications brought in by nonstatistics students for the experimental designs discussed. The nonstatistics students, beyond learning other experimental designs, were exposed to the statistical conversations concerning the problems they presented to the instructor. This immersion started the lines of communication between our groups.

Osborne answered the question by saying, "The concept of 'repeated sampling' can sometimes be elusive. I often ask how things would be different if the exact same experiment were repeated, controlling for as much variation as possible."

For the researcher who may not be familiar with the concept of repeated sampling, I simply restate the need for a statistician to be involved as early in the problem as possible.

### Statisticians Are Researchers, Too

Those who have studied statistics do not spend their days consumed by the calculations of probability density functions. We statisticians do have interests in science, too. For example, I have always had an interest in hurricanes, so much so that my PhD research involves hurricane modeling. My interactions with meteorological researchers have been much smoother than if a different statistician had been involved without some interest and basic knowledge of weather.

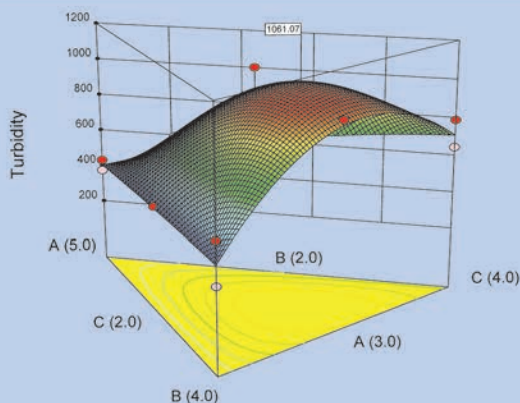
As a researcher, you may not have the good fortune of finding that ideal statistician who has an interest in and prior knowledge of your field, but do not let that stop you from finding a good communicator who is willing to listen and learn more about your subject matter.

### Final Thoughts

Statisticians and researchers are two groups of people who need each other. Despite this need, communication between us is not always fluid. With a little work, and perhaps taking a few of the suggestions mentioned above, a more stable bridge can be built. ■

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## MASTER'S NOTEBOOK

# Statistical Consulting in a University Research Setting

Gregory J. Stoddard, University of Utah

**M**y first job after graduation was as a biostatistician for a medical device subsidiary of Becton Dickinson, Inc. The director of statistics from the corporate headquarters commented to me that he found working as a statistician in the medical device industry much more exciting than his experience in the pharmaceutical industry. In the pharmaceutical industry, he explained, it takes several years to complete a clinical trial, while for medical devices, the clinical trials are completed in less than a year. So, you get to see the results of your work much faster and then move on to a new problem. That seems like an amusing contrast now. In the university setting, I frequently complete consulting projects in less than a week, and the projects just keep coming.

Here are three hypothetical situations you might find yourself in, so you can evaluate your skill level and interest.

**Situation One:** A researcher from the surgery department comes to you with the consultation request, “I have some data, and I now need some help with the analysis.” The researcher gives a short description of the study. It involves a retrospective data collection from  $n=50$  patient records who underwent Therapy A and  $n=50$  patients from the same clinic who underwent Therapy B. It was not a randomized study, but a series of patients who went through the clinic during the past year. The investigator wants to show that Therapy A is better. You ask to see the study protocol. In the statistical section, it states simply, “The data will be analyzed with chi-square tests and analysis of variance. The sample size of  $n=50$  per group provides adequate power<sup>10</sup>.” The reference number 10 is a surgery research article, not an article on sample size determination.

**Situation Two:** A researcher from the art department comes to you at the design stage of a study. She says, “I have developed an art therapy program that I think will help children with muscular dystrophy. As you probably know, muscular dystrophy is a disease in which muscles of the body get weaker and weaker and may slowly stop working. I think if I can get the kids meaningfully engaged in expressing themselves through drawing and painting, it

will slow their disease progression. Can you help me with this study?”

**Situation Three:** A researcher from the sociology department comes to you with the request, “I have a grant that is due in one week. I would have come to you sooner, but I just found out about the grant opportunity one month ago and I wanted to have a good part of it done so you could see what it is about.”

## Common Theme One

The common theme of these situations is that you are now on the spot. You have to display confidence and take charge, or you will lose your credibility as an expert. These researchers are depending on you to make their projects successful. You are now in a very applied situation, which requires you to think way outside of the statistical theory box. You have to be much more than a statistician—you have to be a researcher and think like a scientist. You have to not be intimidated by the research client’s field, which is unfamiliar to you. Even with your own field, which is statistics, you cannot get away with specializing in just one or a few topic areas. Your consulting clients rely on you to be an expert in all areas of applied statistics, providing the best solutions available and tailoring these statistical methods to their specific research problems.

That is pretty much how your job interview will go, as well. The interviewer, who is trying to predict your success in an academic applied statistical consulting, will provide you with a research problem and ask how you would solve it. Your statistical theory classes are essential training, but questions about theory are not likely to come up in the job interview. To prepare, if you are still in school, you should take as many applied statistics and research design classes as you can from departments all across campus. Also, getting work experience while earning your degree is crucial.

Now let us test your skill at grasping what is involved with these three scenarios.

**Situation One Solution:** From the sample size determination of the protocol, you can tell a statistician was not involved in designing the study. The

For more information about statistical consulting, visit the ASA Statistical Consulting Section online at [www.amstat.org/sections/cnsl/index.cfm](http://www.amstat.org/sections/cnsl/index.cfm).

researcher apparently found an article in a surgical journal, not necessarily involving the same therapies the researcher is studying, in which a significant difference was observed using a sample size of  $n=50$  per group. It is surprisingly frequent for nonstatisticians to think this qualifies as a sample size determination. The statistical methods of the protocol appear to be some statistical tests thrown in to sound credible, so it will be up to you to suggest better statistical approaches.

One thing you should bring up in your meeting with this investigator is whether it would be sufficient to show that Therapy A is no worse than, or noninferior to, Therapy B. If the two therapies are essentially identical in effectiveness and complications, but Therapy A is less expensive, a noninferiority study approach is a better study design than the traditional superiority, or “find a difference,” approach. Most researchers do not think about this, so it is up to you to bring up the topic before looking at the data.

Something else you should recognize is that since the study was not randomized, being an

“observational” study, confounding is going to be present. Since it is a case series, some form of selection bias is likely to be present, as well. The concepts of confounding and bias are taught in epidemiology courses—every statistician should take an epidemiology class, or at least read one epidemiology textbook. The control for confounding is going to require some version of a multivariable regression model. Addressing bias might require a sensitivity analysis.

**Situation Two Solution:** Since a degree in art does not require research training, you will probably have to take the lead with all research aspects of this project. The study is not a bad idea, as some benefit to the children with this disease could come out of it. It is not likely that art therapy will successfully slow the disease progression, or at least the effect will be very small. It would require an impractically large sample size to have adequate statistical power. So, you should make physical function a secondary variable, being content to show a “trend in the right direction” descriptively. Then, make something like “life satisfaction” or “self-esteem” your primary outcome, using an existing standardized scale, and power the study for that outcome.

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What to use for a control group will take some thought. What will help with that decision is determining what the researcher would want to say in her article when she publishes the result. It is possible that the improvement in self-esteem is due largely to the attention the researcher gives the children during the art therapy sessions, rather than the art activity. If that is fine with the researcher, then you would only need to compare against a control group in which no art therapy is given. If it is important to the researcher to conclude that the effect can be attributed to the art activity itself, then a control group in which the researcher is giving the children the same amount of attention, but with a different type of activity, would be required. This is a good example of the statistician needing to think way beyond statistical tests.

**Situation Three Solution:** Grant writing is a very advanced statistical consulting skill. Frequently, you have to help the researcher revise his study aims as the first step, which requires that you be a better researcher than the research client to even recognize that the aims are not correctly conceived. In the end, the grant reviewer for the funding agency, in deciding if the project should be funded, will look to see if there is perfect alignment between aims, testable hypotheses, statistical method, and sample size determination.

You cannot just cut and paste statistical methods into the grant; they have to be perfectly tailored, and you have to convince the reviewer why those statistical methods are the best methods for testing the hypothesis. It is almost always a rushed process, so you do not have time to learn as you go—you have to be an expert from the start. Since funds are limited, the reviewer must find critical faults with 90% of the grants, so these can be eliminated from the competition. A lot is riding on your performance, frequently more than \$1 million in potential funding. If you make a mistake, that money will be lost, since the statistical sections of a grant are an easy target for the reviewer to find an excuse for not funding the study.

### Common Theme Two

A second common theme of these scenarios is that there is a lot more to consulting than just analyzing data. The analysis part is there, to be sure, but you cannot get by with just crunching numbers. You have to have a “big picture” perspective and expertise of the whole research process. If this sounds like a fun challenge and you do okay with deadline stress, then statistical consulting is a great career path. ■

## Abstracts Sought for American Statistical Association Conference on STATISTICAL PRACTICE

A limited number of presentations will be accepted for the 2013 Conference on Statistical Practice, to be held in **New Orleans, Louisiana**, from February 21–23. Abstract submission will take place from May 1 to June 1 at [www.amstat.org/meetings/csp/2013/abstracts.cfm](http://www.amstat.org/meetings/csp/2013/abstracts.cfm). Abstracts can focus on any one of the following four broad tracks:

### Communication, Impact, and Career Development

- Communication skills
- How to have an effect on your organization
- How to listen
- Ethics
- How to advance your career
- How to adapt and learn

### Data Collection and Analysis

- Useful data analysis techniques
- Econometrics and time series methods
- Nonparametric methods
- Modern regression methods
- Categorical data analysis
- Survival and reliability methods
- Statistical engineering
- Experimental design
- Computer experiments
- Survey design, distribution, automation, analysis

### Prediction and Analytics

- How to process and use big data
- Determining prediction reliability
- Data mining
- Is there such a thing as too much data?
- Discovery versus prediction
- Analytics as a process or system
- Determining valuable information from misleading or “junk” information

### Software and Graphics

- Software tools
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# Reaching 20k

Monica Johnston, ASA Committee on Membership Retention and Recruitment Chair

Did you know the ASA has a website for individuals who recently graduated from a statistics program? Check it out at <http://stattrak.amstat.org>.

The American Statistical Association is a strong, vibrant organization with approximately 18,000 members and the largest community of statisticians in the world. In the April issue, the ASA was described as a “big tent” organization with room for growth. The goal of the Committee on Membership Retention and Recruitment (CMRR) is to help the ASA reach 20,000 members by its 175th anniversary in Boston in 2014. To meet this goal, we are working diligently to identify viable ways to increase the number of student members who renew as regular members after they graduate and increase recruiting in areas where statisticians have a growing professional presence.

The ASA has about 4,800 student members. About 59% of students renew their annual membership compared to 86% of nonstudents. Furthermore, we estimate that only 25% of students convert to regular membership after graduation. Since the ASA offers reduced membership fees for students and recent graduates, and the full regular membership fee is less than 0.5% of a typical first-year salary, CMRR is satisfied that fees—for most—are not a barrier for renewal. Instead, there are other factors affecting conversion.

Members of CMRR believe students determine what a membership benefit is. ASA members who are established professionals may itemize and exalt benefits of membership, but if a student doesn't value a particular benefit, then it isn't genuinely considered a benefit. An important aspect of communicating membership benefits is listening to prospective members describe benefits that they value or expect. Therefore, in addition to showing a slide show on benefits of membership during the JSM Student Mixer, CMRR is exploring how student focus groups can improve our understanding of factors that promote or hinder conversion from student to regular membership.

Additionally, members of CMRR think creating opportunities for students to be active members promotes conversion. For example, if you are an officer or active member of a chapter or section, you can help increase retention of transitioning student-professionals by encouraging greater student involvement in chapter and section activities. Officers can use online membership reports (along with help from the ASA) to identify current (or lapsed) student members. When students serve as elected or appointed officers, event organizers, session chairs, etc., they may encourage other students to get involved. Additionally, students who hold office or have other responsibilities may be more likely to renew as regular members after

graduation, especially if their term of service does not coincide with their graduation date.

We encourage chapters and sections with resources to consider offering grants to transitioning student-professionals for continuing education and conference travel not specifically hinged on submitting a paper to a conference. Grants help transitioning student-professionals experience the benefit of quality continuing education, while leadership opportunities help them experience professional development; both can have a positive effect on retention.

CMRR is working with the ASA marketing department staff to develop exit packages for graduating statistics students. Exit packages will contain benefit information and incentives for keeping membership profiles updated and new professionals connected to the ASA.

A second focus of the CMRR is to increase membership from growing groups of statisticians or areas of application. The CMRR is exploring how the ASA can attract distance learners of graduate programs in statistics. In the last 12 months, the department of statistics at Texas A&M University received 1,133 applicants, of which 718 applied for a master's degree and 415 applied for a four-course certificate. Currently, the department has 17 traditional learners and 240 distance learners. Other universities are developing similar programs. Distance learners may represent a good source for recruiting. Other sources include statisticians who are working in business analytics and data mining.

CMRR is exploring whether professional groups within social media networks are good sources of new members. For example, Meetup.com has a data mining group that attracts nearly 1,000 members from the San Francisco Bay Area. Members of CMRR will be working with the ASA's marketing staff to increase the ASA's visibility within such groups. We also encourage you to help grow membership through the ASA's Member-Get-A-Member Drive ([www.amstat.org/membership/mgm](http://www.amstat.org/membership/mgm)).

As members of chapters, sections, and committees, it is important to remember the difference between describing a benefit to students and early-career professionals and having them experience that benefit through active membership in the ASA. Help us reach our goal of 20,000 members with timely creation of opportunities for transitioning student-professionals.

If you have ideas for increasing membership, please convey them to your chapter, sections, and committees, or contact Monica Johnston at [mostlymath@aol.com](mailto:mostlymath@aol.com). ■



The San Antonio Chapter vice president, Jonathan Gelfond (right), presents the Don Owen Award to George McCabe of Purdue University (left) on March 2 for his outstanding contributions to statistical research, applications, and teaching.

The 2012 Don Owen Award, given by the American Statistical Association's San Antonio Chapter, was presented to **George P. McCabe** on March 2 at the Conference of Texas Statisticians by chapter vice president, Jonathan Gelfond.

McCabe is a professor of statistics and associate dean for academic affairs in the College of Statistics at Purdue University. He earned his doctorate in mathematical statistics from Columbia University in 1970 and has served as assistant, associate, and full professor—as well as the director of the consulting center in the department of statistics—at Purdue.

McCabe has published more than 175 articles about statistical methodology and in a variety of application fields, including engineering, medicine, agriculture, veterinary medicine, and pharmacy. He has taught numerous graduate and undergraduate courses and directed a number of doctoral students. His book with David Moore, *Introduction to the Practice of Statistics* (now in its 7th edition), “has been a major influence in changing statistical education and how it is perceived...,” as stated by Rebecca W. Doerge in her nomination letter.

McCabe has done an enormous amount of statistical consulting work not only in the university setting, but also involving more than 70 government agencies, organizations, and companies. He is an elected Fellow of the American Statistical Association and American Association for the Advancement of Science. He is a senior member of the American Society for Quality and president of the National Statistics Honorary Society, Mu Sigma Rho. He served as associate editor for

*Technometrics and Computational Statistics and Data Analysis* and has served as board or advisory member of many other associations and committees.

The San Antonio Chapter is proud to honor McCabe for his excellence in research, statistical consultation, and service to the statistical community. The Don Owen Award is presented annually by the San Antonio Chapter and Taylor & Francis. ■

ASA member **Jerry L. Oglesby** was selected by the Texas A&M College of Science for its highest alumni honor, induction into the college's Academy of Distinguished Former Students.

Oglesby currently serves as senior director of Global Academic Programs and Global Certification within the education division of SAS Institute Inc. He earned his doctorate in statistics from Texas A&M under the direction of Ronald R. Hocking.

He served 13 years as both an assistant and associate professor of statistics at the University of West Florida and,

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## 2012 Conference of Texas Statistician

Kumer Pial Das

The Conference of Texas Statistician (COTS) was hosted at Lamar University from March 2–3. Kumer Pial Das and Mary E. Wilkinson from the math department, as well as Steve Doblin and Joseph Nordgren from the College of Arts and Sciences, spoke at the welcome session.

In addition to George McCabe, who was presented with the Don Owen Award, Dennis Cox of Rice University, Robert Serfling of The University of Texas at Dallas, Cecil Hallum of Sam Houston State University, David Kahle of Baylor University, Mohammed A. Shayib of Prairie View A&M University, and Eddy Kwessi of Trinity University gave talks.

Shaymal De of The University of Texas at Dallas received the first-place award of \$100 in the student poster contest. The second-place award of \$75 went to Gerald Ogola of The University of Texas at Dallas, and the third-place award of \$50 went to Anthony Daspit of Lamar University. Twenty-two posters were submitted at the COTS this year.

in 1978, became founder and chief executive officer of SCI Data Systems Inc. Before joining SAS in 1996, he worked for Monsanto Chemical Company as plant statistician.

Oglesby serves on several advisory boards in support of statistics, computer science, and data mining, including five years on the Center for the Management of Information Systems Board in the department of information and operations management at Texas A&M Mays Business School. He also serves as co-chair for several of SAS Education's data mining, forecasting, and discovery conferences. ■

**C. R. Rao** recently received three honorary doctorate degrees: DSc from the University of Colombo, Sri Lanka, in December of 2011; DSc from

Karanatic University, Dharwad, in January of 2012; and DLitt from International Sanskrit University, Tirupati, in February of 2012. These are his 34th, 35th, and 36th honorary degrees.

Rao was the director of the Indian Statistical Institute, Kolkata, where he worked for 40 years before retiring at the mandatory retirement age of 60. He is the founder of the new institute, CRRAO AIMSCS at the University of Hyderabad. At the age of 92, he is still active trying to develop the institute as one of national importance for advanced research in mathematics, statistics, and computer science. He is currently Eberly Professor Emeritus at Penn State and research professor at the University at Buffalo.

Rao started the Statistic Olympiad program, the first in the world, to encourage the

study of statistics and has plans to establish a museum of statistics for public education of statistics.

He is the recipient of numerous national and international awards, including the India Science Award, National Medal of Science, Guy Medal in Gold of the Royal Statistical Society, and the Wilks Medal.

Rao worked with P. C. Mahalanobis to establish state statistical bureaus to make India one of the most advanced countries in the collection of official statistics. He initiated educational and PhD programs in statistics. In the November 2012 issue of *Significance* magazine, editor Julian Champkin said, "C. R. Rao is a great name from the golden age of statistics. His work was done in India; his intellect shaped statistics worldwide." ■

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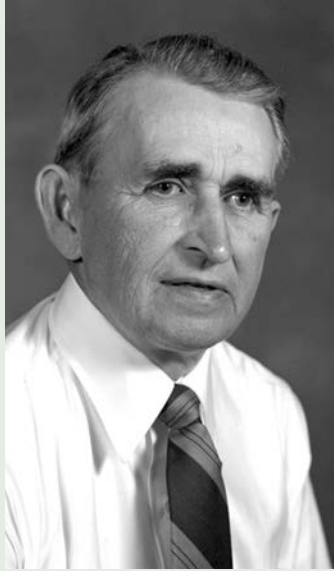
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## Obituary

### Franklin Arno Graybill

Prepared by Duane Boes, Jay Breidt, and Hari Iyer



Franklin Arno Graybill, professor emeritus and founding chair of the department of statistics at Colorado State University (CSU), died February 17, 2012, at the age of 90.

Frank was born to Arno and Lula Graybill on September 23, 1921, in Carson, Iowa, a farming community of about 600 inhabitants. He attended Carson Consolidated School and then attended two years of college at Tabor Junior College.

In September of 1941, he enrolled at William Penn College and completed one semester of coursework before joining the Army Air Corps.

After the war, Frank attended summer school at Colorado State Teachers College. However, the college would not accept his course credits from Tabor Junior College, which had gone out of business during World War II, so he returned to William Penn

College and completed his bachelor's degree in education in May of 1947, with mathematics and physics as his main subjects. It was during this period that Frank met Jeanne Bunting, whom he married on May 24, 1947.

In September of 1947, Frank and Jeanne moved to Stillwater, Oklahoma, where Frank earned his master's degree in mathematics at Oklahoma A&M. In the fall of 1949, he went to Iowa State University to do his PhD in statistics, where he would work under the direction of Oscar Kempthorne. Frank wrote his dissertation, titled "Quadratic Estimates of Variance Components," and graduated with a PhD in 1952. He then went back to Oklahoma A&M as an assistant professor of statistics and stayed until 1960.

In 1959, Frank attended the IMS meeting in Laramie, Wyoming, where he met Elmer Remmenga from the department of mathematics at CSU. Remmenga informed him that the dean of faculty at CSU, Andrew Clark, and the head of the mathematics department, Les Madison, were interested in creating a graduate program in statistics and looking for a suitable candidate to lead this effort. Shortly thereafter, Frank interviewed for the position and received an offer to join the department. In August of 1960, he began his tenure at CSU, where he stayed for the next 37 years.

Soon after Frank's arrival, the department of mathematics changed its name to department of mathematics and statistics. During his initial years at CSU, Frank created the statistical laboratory and initiated the PhD program in statistics. In 1971, the department of mathematics and statistics split and Frank

became head of the new department of statistics. He served as department head until 1975.

Frank was president of WNAR of the International Biometric Society in 1967. In 1968, he served as an associate editor of the *Annals of Mathematical Statistics*; he was editor of *Biometrics* from 1972–1975. He was president of the American Statistical Association in 1976.

Frank taught graduate courses in linear models, experimental design, and matrix theory. He advised 33 MS and 26 PhD students during his tenure at CSU. Frank also published a number of books, both theoretical and applied, including *Theory and Application of the Linear Model*, *Matrices with Applications in Statistics*, *Introduction to the Theory of Statistics*, *An Introduction to Statistical Models in Geology*, and *Confidence Intervals on Variance Components*.

In 1981, Frank began working part time, but continued to teach and advise until he retired in 1997.

The success of the statistics program at CSU is in a large part due to Frank's efforts, astute hiring during the 1960s, vision for the department, creation of the statistical laboratory (which now bears his name), and leadership and hard work over the years. To thank him for his many contributions to the development of statistics at CSU, the department annually presents a graduate student with the Graybill Award for Excellence in Linear Models and hosts the Graybill Conference Series.

Frank will be remembered by his students and colleagues not only for his professional achievements, but also as a warm, kind man with great devotion to his family and a wonderful, down-home sense of humor.

## Obituary

### Paul Levy

Paul S. Levy, a prominent biostatistics educator and researcher, died in a convalescent center in Durham, North Carolina, from consequences of a spinal cord injury he suffered following a fall three years ago. He was 75.

Paul was an outstanding leader in public health and medical research. During his career, he authored more than 200 publications and 30 book chapters and monographs in the fields of biostatistics and epidemiology. His expertise in sampling methods allowed him to affect a broad range of topics.

Early in his career, he developed methods to measure the effectiveness of the Illinois Trauma System in getting severely injured patients to trauma centers. As part of this work, he pushed the science in new directions, most notably in devising measures of injury severity that would allow surgeons to compare outcomes across hospitals.

Paul was principal investigator for the Patient Registry for Primary Pulmonary Hypertension (PRPPH). His work on survival of patients with primary pulmonary hypertension was published in highly prestigious medical journals and has been cited by thousands of researchers. His co-PI, Stuart Rich, recently commented that the registry is considered a gold standard for information about PPH. Paul was instrumental in developing data collection and analysis tools for the Centers for Disease Control and Prevention's Behavioral Risk Factor Surveillance System, the largest ongoing telephone health survey in the United States. As part of his research, he proposed a simple software tool designed to measure the use of dietary supplements in the United States population. In parallel, he was one of the first to document the

widespread use of dietary supplements in children from national data. His textbook, *Sampling of Populations: Methods and Applications*, is one of the most widely cited books in this field.

In recognition of his achievements in the development, evaluation, and dissemination of sample survey methodology and for the design and implementation of surveys of major public health importance, Paul was selected as a Fellow of the American Statistical Association. In addition, he was named a Senior Fellow at Research Triangle Institute (RTI) International in 2006. This designation represents the highest scientific honor RTI bestows on its own researchers.

In addition to a thriving career, Paul demonstrated excellent physical endurance and stamina. Between the ages of 60 and 70, he competed frequently in ultramarathon events that involved running for distances of 50 miles. When he was 66, he climbed 96 floors in Chicago's John Hancock Building in 15 minutes.

Paul was a beloved colleague, professor, and mentor throughout his illustrious career. He approached his life and his profession with precision, excellence, and a great sense of humor.

"Paul gave me my first job. His advice was to work hard and fast, before people discovered I was around. I did," said Northwestern University professor Borko Jovanovic, a former colleague. "His second piece of advice was, 'Focus on problems useful to other people.' I did, and I have done well in my career ever since. His third suggestion was, 'If it is not fun, it is probably not worth doing.' He was the best boss I ever had."

"He had a unique way of getting to the heart of a problem. Paul had a gift for finding simple solutions to knotty statistical problems that stumped others,"

noted University of Washington professor Jack Goldberg, one of Paul's former students. "I remember how he would always say that if you went back to the basic tools of biostatistics and epidemiology, you could usually find an answer to your problem without having to do anything too complicated."

Paul earned a doctorate in biostatistics from The Johns Hopkins University, a master's degree in mathematical statistics from Columbia University, and a bachelor's degree in mathematics from Yale University.

He was a founding faculty member of the school of public health and the first director of the division of epidemiology and biostatistics at the University of Illinois at Chicago (UIC). Prior to his career at UIC, he was a faculty member at the Harvard Medical School, as well as the University of Massachusetts School of Public Health, an epidemic intelligence officer at the Centers for Disease Control and Prevention, and a mathematical statistician at the National Center for Health Statistics. Most recently, Paul was employed by the RTI, where he focused on the development and dissemination of statistical methodology, particularly in the areas of sample survey methodology and epidemiology.

Paul served as president of the ASA Chicago Chapter and won the award for Teaching Excellence at the University of Illinois School of Public Health in 1978.

In lieu of flowers, the family requests contributions be made to the UIC School of Public Health, where a fund in Paul's name has been established to assist students in the division of epidemiology and biostatistics. Checks should be made out to the University of Illinois Foundation/Paul Levy Fund and sent to the UIC School of Public Health, 1603 W. Taylor, Room 1189, Chicago, IL 60612.



# sectionnews

## Biometrics

The Biometrics Section will sponsor four short courses during JSM 2012 in San Diego, California. The first, Statistical Analysis with Missing Data, will be taught by Roderick Little and Trivellore Raghunathan and focus on methods for the statistical analysis of data sets with missing values.

Smoothing Splines: Methods and Applications will be taught by Yuedong Wang and concentrate on a particular class of modern nonparametric regression methods called spline smoothing for estimating functions of one and several variables.

The third course—Statistical Methods for Genome-Wide Association, Copy Number Variants, and Rare Variants Analysis—will be taught by Hongzhe Li and Wei Pan and introduce statistical issues and methods related to analysis of genome-wide association data.

The fourth course, Design and Analysis of Biomarker Studies for Risk Prediction, will be taught by Tianxi Cai and Yingye Zheng, who will present recent statistical development for constructing and evaluating risk prediction model (markers) with censored data.

In addition to the CE courses, the section is sponsoring six invited sessions. To view the JSM 2012 online program or register for a course, visit [www.amstat.org/meetings/jsm/2012](http://www.amstat.org/meetings/jsm/2012).

The section also needs ideas for JSM 2013 invited sessions, to take place August 3–8 in Montréal, Québec, Canada. Anyone interested in organizing an invited session or who has ideas for one should contact Timothy D. Johnson at [tdjdj@umich.edu](mailto:tdjdj@umich.edu). Submit your ideas for short courses to Annie Qu at [anniequ@illinois.edu](mailto:anniequ@illinois.edu).

Invited session ideas are also welcome for the ENAR 2013 conference, which will take place March 10–13, 2013, in Orlando, Florida. Send your ideas to Daniel Scharfstein at [dscharf@jhsph.edu](mailto:dscharf@jhsph.edu).

For detailed section news, visit <http://magazine.amstat.org/?cat=17>.

## Health Policy Statistics

The Section on Health Policy Statistics is set for the 2012 Joint Statistical Meetings in San Diego, California. The student paper competition winners will present their papers as part of the regular program on July 30. Winners are Ludi Fan, University of Michigan; Hwanhee Hon, University of Minnesota; So Young Kim, The University of North Carolina at Chapel Hill; Gregory Matthews, University of

Massachusetts-Amherst; and Cheng Zheng, University of Washington. The awards ceremony is scheduled to take place that evening during the section's business meeting and social mixer; there will be a door raffle at the event, and all members are welcome to attend.

The section's scientific program includes many informative sessions about risk versus propensity score-based matching methods, bias reduction, and causal modeling. The section's topic-contributed panel on scoring systems for person-reported outcome measurements will feature experts from the field who will lead an interactive discussion. Also included is a full lineup of roundtable discussions:

Causal Direction and Model Evaluation in Structural Equation Models—Douglas David Gunzler, Case Western Reserve University

What Do Statisticians Have To Do with Patients?—Laura A. Hatfield, Harvard Medical School

Issues in Adaptive Bayesian Dose-Finding Designs—Thomas M. Braun, University of Michigan

Health Care Policy, Entitlements, and the Pharmaceutical Industry—T. Ceasay and Darcy Hille, Merck & Co., Inc.

Do You Want To Visit Australasia?—Louise M. Ryan, Commonwealth Scientific and Industrial Research Organization

Preparing To Work in a Developing Country—Mark Griffin, Australian Development Agency for Statistics and Information Systems

The Impact of Comparative Effectiveness Research on the Clinical Research Enterprise—Sheldon Greenfield, Health Policy Research Center

Methods for Analyzing Patient-Reported Outcomes—Kelly Zou, Pfizer Inc.

For questions or comments about the HPSS program or activities in general, email section officers Chris Schmid at [chrishschmid@gmail.com](mailto:chrishschmid@gmail.com), Yulei He at [he@hcp.med.harvard.edu](mailto:he@hcp.med.harvard.edu), or Frank Yoon at [fjoon@mathematica-mpr.com](mailto:fjoon@mathematica-mpr.com).

For detailed information about the HPSS JSM program, visit [www.amstat.org/meetings/jsm/2012/onlineprogram](http://www.amstat.org/meetings/jsm/2012/onlineprogram). For information about the section, visit <http://magazine.amstat.org/?cat=17>.

## Statistical Programmers and Analysts

The Section for Statistical Programmers and Analysts (SSPA) is looking forward to being in San Diego and participating in JSM with relevant Continuing Education courses; exciting roundtable discussions; and various presentations on statistical programming in medicine, health care, and finance.

The section also offers student travel awards to cover the registration fees for students and recent

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

graduates who want to attend an ASA conference. Details and an application are available at <http://goo.gl/JMrQD>. We encourage you to go to the JSM Student Mixer on July 30, from 6–8 p.m. to meet other students. A section officer will be there to answer questions about SSPA and the role of statistical programmers in early-career jobs.

Visit the SSPA booth in the JSM exhibit hall for details about upcoming webinars on technical and soft skills and travel grants. If you are interested in volunteering at the booth, visit [www.doodle.com/4hargzvz43mn84g](http://www.doodle.com/4hargzvz43mn84g).

For detailed section news, visit <http://magazine.amstat.org?cat=17>. To view the JSM 2012 program or register, visit [www.amstat.org/jsmregistration](http://www.amstat.org/jsmregistration).

## Statistics and the Environment

Members of the Section on Statistics and the Environment are preparing for an exciting program at this year's JSM in San Diego, California. They are sponsoring the following roundtables:

Spatial Thinking for Environmental Processes, with Alan Gelfand of Duke University

Bayesian Methods in Genetic and Environmental Epidemiology, with Bhramar Mukherjee of the University of Michigan

How Do We Adjust for Confounding Factors in Environmental Health? with Francesca Dominici of Harvard University

A business meeting and mixer also are planned. For details, visit the online program at [www.amstat.org/meetings/jsm/2012/onlineprogram](http://www.amstat.org/meetings/jsm/2012/onlineprogram).

In addition to this year's JSM, the section is hosting a workshop on environmetrics, to take place October 11–13 at North Carolina State University. The theme for the workshop is "Spatial Modeling and Inference for Environmental Science," and the focus of the workshop is state-of-the-art statistical methods motivated by important research problems in modern environmental science. Two half-day short courses will be offered, introducing researchers to important topics in methods for environmental science. There also will be a poster session, providing an opportunity for graduate students and other young researchers to participate.

To view detailed section news, visit <http://magazine.amstat.org?cat=17>.

## Statistics in Epidemiology

The Section on Statistics in Epidemiology invites applications for young investigator awards from junior researchers who will be presenting papers at the 2012 Joint Statistical Meetings (JSM) in San Diego, California. The awards honor the best papers

in statistics in epidemiology presented at the meetings and are open to all current and recent graduate students in statistics, biostatistics, and epidemiology. Each award consists of \$500 and a certificate.

To apply, you must have already submitted an online abstract for JSM 2012. Papers to be presented should be submitted by June 1, along with a cover letter stating where you are a current student or your year of graduation if you are a recent graduate, to Jaya Satagopan at [satagopj@mskcc.org](mailto:satagopj@mskcc.org). Questions about the award can be addressed to Melissa D. Begg, section chair, at [mdb3@columbia.edu](mailto:mdb3@columbia.edu).

The section is also sponsoring a short course at this year's JSM called Propensity Score Matching in R, which will be taught by Ben Hansen. This course introduces propensity score matching and related ideas conceptually and methodologically, with complementary programming exercises using R and its `optmatch` and `Rtools` add-on packages. For ASA members, the cost is \$370; for nonmembers, \$490; and for students, \$255. To view a complete course description and register, visit [www.amstat.org/meetings/jsm/2012/onlineprogram](http://www.amstat.org/meetings/jsm/2012/onlineprogram).

For section details, visit <http://magazine.amstat.org?cat=17>.

## Survey Research Methods

Did you know the Survey Research Methods Section sponsors a webinar series? This month, Roderick Little of the U.S. Census Bureau and the University of Michigan will present "The Calibrated Bayes Approach to Sample Survey Inference."

To register, visit to [www.amstat.org/sections/SRMS/webinar.cfm](http://www.amstat.org/sections/SRMS/webinar.cfm). This website provides information about all upcoming webinars and the slides from previous SRMS webinars.

In addition to the webinars, the section has five invited sessions planned for JSM 2012. Four are paper sessions and one is a panel:

International Census Coverage, organized by Vincent T. Mule

Poverty Mapping with Complex Survey Data, organized by Sam Hawala

Multiple Faces of Multiple Imputation: 25+ Years of Development, Innovation, and Application, organized by Joerg Drechsler

Dual-Frame RDD vs. Address-Based Sampling: Conducting Scientific Surveys in the 21st Century, organized by Meena Khare

Panel: Multi-Level Data Methods to Detect and Adjust for Nonresponse Bias in Sample Surveys, organized by Tom W. Smith

For detailed section news, visit <http://magazine.amstat.org?cat=17>.

## 2012

## June

**\*19–20—Human Error Prevention, Garden Grove, California**

For details, visit [www.HighTechnologySeminars.com](http://www.HighTechnologySeminars.com) or contact Ben Marguglio, POB 8, Cold Spring, NY 10516; (845) 265-0123; [ben@HighTechnologySeminars.com](mailto:ben@HighTechnologySeminars.com).

**20–22—Using Lean Six Sigma to Prevent Avoidable Readmissions, Chicago, Illinois**

For details, visit [www.wcbf.com/quality/5112](http://www.wcbf.com/quality/5112) or contact Selina Mirpuri, First Floor, Jubilee House, Merrion Avenue, London, International HA7 4RY, UK; (800) 959-5346; [selina.mirpuri@wcbf.com](mailto:selina.mirpuri@wcbf.com).

**20–24—8th International Symposium on Statistics, West Lafayette, Indiana**

For information, visit [www.stat.purdue.edu](http://www.stat.purdue.edu) or contact Diane Martin, 250 N. University Ave., West Lafayette, IN 47907; (765) 494-3141; [martindl@purdue.edu](mailto:martindl@purdue.edu).

**23–25—International Conference on the Interface Between Statistics and Engineering, Tainan, Taiwan**

For details, visit [conf.ncku.edu.tw/icise](http://conf.ncku.edu.tw/icise) or contact Shuen-Lin Jeng, No. 1, University Road, Tainan, International 701, Taiwan; 886-6-2757575-53600; [sljeng@mail.ncku.edu.tw](mailto:sljeng@mail.ncku.edu.tw).

**24–27—32nd Annual International Symposium on Forecasting, Boston, Massachusetts**

For details, visit <http://forecasters.org/isf/index.html> or contact Pam Stroud, 53 Tesla Ave., Medford, MA 02155; (781) 234-4077; [isf@forecasters.org](mailto:isf@forecasters.org).

**25–27—3rd Annual Pacific Coast Statisticians and Pharmacometricians Innovation Conference (PaSiPhIC), San Luis Obispo, California**

For information, visit [www.pasiphic.calpoly.edu](http://www.pasiphic.calpoly.edu) or contact Brian Smith, One Amgen Center Drive, MS 38-3-B, Thousand Oaks, CA 91360; (805) 447-1378; [brsmith@amgen.com](mailto:brsmith@amgen.com).

**25–29—SAMSI Summer Program: Nonlocal Continuum Models for Diffusion, Mechanics, and Other Applications, Research Triangle Park, North Carolina**

For more information, visit [www.samsi.info/workshop/nonlocal-continuum-models-diffusion-mechanics-and-other-applications](http://www.samsi.info/workshop/nonlocal-continuum-models-diffusion-mechanics-and-other-applications) or contact Karem Jackson, 19 T.W. Alexander Drive, RTP, NC 27709; (919) 685-9324; [admin@samsi.info](mailto:admin@samsi.info).

**\*26–28—4th European DOE User Meeting, Vienna, Austria**

For details, visit [www.statease.com/4theuropeanmeeting.html](http://www.statease.com/4theuropeanmeeting.html) or contact Heidi Hansel Wolfe, 2021 E. Hennepin Ave., Suite 480, Minneapolis, MN 55413-2726; (612) 746-2033; [heidi@statease.com](mailto:heidi@statease.com).

**27–29—Using Lean Six Sigma and Process Improvement to Improve Patient Satisfaction: Improving Quality, Safety, and Experience, Boston, Massachusetts**

For details, visit [www.wcbf.com/quality/5113](http://www.wcbf.com/quality/5113) or contact Selina Mirpuri, First Floor, Jubilee House, Merrion Avenue, London, HA7 4RY, UK; (+1)(800) 959-5346; [selina.mirpuri@wcbf.com](mailto:selina.mirpuri@wcbf.com).

**27–29—WCBF's Using Lean, Six Sigma, and Process to Improve Patient Satisfaction: Improving Quality, Safety, and Experience, Chicago, Illinois**

For details, visit [www.wcbf.com/quality/5113](http://www.wcbf.com/quality/5113) or contact Selina

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

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

» Indicates events posted since the previous issue

Mirpuri, 30 S. Wacker Drive, 22nd Floor, Chicago, IL 60606; (800) 959-6549; [selina.mirpuri@wcbf.com](mailto:selina.mirpuri@wcbf.com).

**\*28–29—Statistical Challenges in eCommerce Research, Montréal, Québec**

For information, visit [www.scecr.org](http://www.scecr.org) or contact Jui Ramaprasad, 1001 Sherbrooke West, Montréal, Québec H3A1G5, Canada; (514) 398-7426; [jui.ramaprasad@mcgill.ca](mailto:jui.ramaprasad@mcgill.ca).

## July

**1–4—IMS Asia Pacific Rim Meetings, Tsukuba, Japan**

For information, visit <http://ims-aprm2012.org/index.html> or contact Runze Li, Penn State University, University Park, PA 16802-2111; (814) 865-1555; [rli@stat.psu.edu](mailto:rli@stat.psu.edu). ■

To view the entire list of statistics meetings and workshops, visit [www.amstat.org/dateline](http://www.amstat.org/dateline).

**Science and Technology Policy Conference Planned**

The seventh Gordon Research Conference on Science and Technology Policy will take place August 5–10 with the theme “S&T Policy in Global Context.” Sheila Jasanoff and Raphael Kaplinsky will make keynote presentations.

All participants are encouraged to present their own work or their organization's in the poster sessions. Also, there will be a student-led, early career seminar August 3–4 at the same site on a related theme.

Buses are available from the Boston airport to the conference site at Waterville Valley Resort in Waterville Valley, New Hampshire. Applications for this meeting must be submitted by July 8.

For details, visit [www.grc.org/programs.aspx?year=2012&program=scipolicy](http://www.grc.org/programs.aspx?year=2012&program=scipolicy).

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](http://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](http://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](mailto: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](http://www.amstat.org/jobweb).

and analysis of population-based registries. Details for all positions, as well as application instructions, are on our website: [www.lerner.ccf.org/qhs/jobs](http://www.lerner.ccf.org/qhs/jobs). Cleveland Clinic is a AA/EOE.

### Texas

■ The Department of Preventive Medicine and Community Health at the University of Texas Medical Branch is recruiting a tenure-track professor or associate who will also serve as the director of the office of biostatistics to play an active leadership role in their teaching, research, and service responsibilities. Applicants must have a PhD in biostatistics or applied statistics. Submit letter of interest and CV to [trgroh@utmb.edu](mailto:trgroh@utmb.edu). UTMB Health is an equal opportunity, affirmative action institution that proudly values diversity. Candidates of all backgrounds are encouraged to apply.

### Minnesota

■ IDEaS is looking for highly motivated individual to develop high-quality statistical algorithms programming & designing new algorithms and carrying out statistical data analysis in support of research. Qualified candidates will have 3+ years' experience in statistical analysis & data modeling & 3+ years' advanced programming skills. Master's degree in mathematics, statistics, or equivalent (PhD and SAS experience preferred). Apply at [www.sas.com/jobs/USjobs/search.html](http://www.sas.com/jobs/USjobs/search.html) referring to job 12001421. EOE.

### Ohio

■ The Cleveland Clinic Department of Quantitative Health Sciences is recruiting for faculty, postdoctoral, and master's-level positions. Many areas are being sought, including biostatistics, data mining, health economics, health status measures,

### International

■ Senior instructor of rank comparable to associate professor position in the Dept. of ISOM. Applications will be accepted until the position is filled. Excellence in teaching and PhD required by employment start date. The successful applicant is expected to play an important role in teaching and developing business statistics courses for undergraduate and MBA programs of the business school. Submit CV and three references to [stat11@ust.hk](mailto:stat11@ust.hk). The Hong Kong University of Science and Technology, School of Business and Management is an Equal Opportunity Employer. ■



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Model selection methods

Statistical graphics

Statistical reliability analysis

Structural equation methods

Survey data analysis

To view and apply online, visit: [sas.taleo.net/careersection/10000/jobdetail.ft!lang=en&job=10001682](https://sas.taleo.net/careersection/10000/jobdetail.ft!lang=en&job=10001682)

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The Department of Biostatistics at St. Jude Children's Research Hospital ([www.stjude.org/biostatistics](http://www.stjude.org/biostatistics)) invites applicants for a faculty position at the Assistant or Associate Member (Professor) level depending upon qualifications. Candidates must have a doctorate in biostatistics or statistics and a record of peer-reviewed publications showing evidence of (for Assistant Member, a potential of) productive methodological research. A strong commitment to collaborative research with clinical and laboratory investigators and continued independent statistical research motivated by biomedical collaborations is expected of the successful applicant. Candidates with collaborative experience with infectious disease investigators are especially encouraged to apply.

The Department staff includes twelve faculty positions, two postdoctoral fellows, nineteen master's level biostatisticians, six computer scientists and several support staff. Applicants must demonstrate excellent oral and written communication skills and be proficient in computing. Compensation is very competitive and commensurate with experience. Send letter of interest, CV, and have three reference letters sent to: [james.boyett@stjude.org](mailto:james.boyett@stjude.org) or Dr. James M. Boyett, Endowed Chair, Dept. of Biostatistics, St. Jude Children's Research Hospital, 262 Danny Thomas Place, Memphis, TN 38105-3678.

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[www.stjude.org](http://www.stjude.org)

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**Biostatistician - PhD Faculty Opportunity**  
**Samuel Oschin Comprehensive Cancer Institute Biostatistics and Bioinformatics Research Center**

Applications are being accepted for a faculty-level biostatistician, effective immediately. The successful applicant will join the Biostatistics and Bioinformatics Research Center and will work closely with a multidisciplinary team of biostatisticians, research scientists and clinicians at the Cedars-Sinai Medical Center to further research efforts at the Cancer Institute (<http://www.cedars-sinai.edu/Patients/Programs-and-Services/Samuel-Oschin-Comprehensive-Cancer-Institute-/Research-and-Clinical-Trials/Biostatistics-and-Bioinformatics-Research-Center/>). An opportunity to develop an independent research program will exist in addition to collaboration and consultation with ongoing research efforts at Cedars-Sinai. The successful candidate will be eligible for an academic appointment in the Cedars-Sinai Medical Center professorial series. Preferred areas of research include but are not limited to clinical trials, survival analysis, and Bayesian modeling.

Applicants must have a PhD or equivalent degree in biostatistics or a statistics-related discipline; be capable of independent research and collaboration; have experience working in an academic setting; and have excellent written and oral communication skills. Cancer-related experience is desirable but not required. Opportunities exist for collaborations in other disease areas.

Responsibilities include:

- Developing or expanding an independent methods-based research program;
- Collaboration and consultation with faculty on design and analytic methods for research proposals and current research projects;
- Teaching statistics at the graduate level; and
- Preparation of grants, reports, and manuscripts

For full consideration, all applicants should submit:

- A cover letter describing qualifications for the position described above;
- A current curriculum vitae;
- Three representative publications; and
- Contact information for three references

Review of applications will begin immediately and will continue until the position is filled. Electronic submissions of application documents (in one PDF file) should be emailed to André Rogatko, PhD, Director of Biostatistics and Bioinformatics Research Center at the Samuel Oschin Comprehensive Cancer Institute, Cedars-Sinai Medical Center c/o [Academic.Recruiting@cshs.org](mailto:Academic.Recruiting@cshs.org)

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The Department of Neurosurgery at Louisiana State University Health Science Center is seeking an biostatistician/epidemiologist to join as the Christus Schumpert Health System Endowed Chair focusing on neuroscience research, stroke and outcomes data. This position will be at the Associate Professor/Professor Faculty level, tenure track, as commensurate with experience. Our research program includes a broad array of applied epidemiologic, clinical services and scientific research.

The successful candidate will be able to take leadership in a program of applied research; mining our large clinical database to produce successful research activities culminating in the writing and publication of scientific papers and the acquisition of applicable grants. They will be responsible for developing research plans, conducting analysis of existing databases, assessing gaps in data collection and analysis, overseeing research intended to acquire new data, and will focus on collaborative, applied research with research team colleagues in neurosurgery and neurology which will require good communication among the multiple departments.

Qualifications include: PhD in Biostatistics/Epidemiology or a closely related field with interest in neurosciences; advanced knowledge of research principles, theories, and concepts; applied statistical skills; applied knowledge of statistical software for analysis of complex data; and a proven record of achievement including peer reviewed publications and national presentations.

Salary, startup package, and space allocation will be commensurate with faculty rank and extramural funding. Applicants should have a PhD and/or MD with relevant post-graduate experience. Applications will be reviewed as they are received until the position is filled. Shreveport is a progressive modern city with excellent schools, numerous family activities, and a very low cost of living. Interested individuals who wish to participate in a unique, diverse, academically productive medical center should send a C.V. with a letter describing research or clinical interests and with three letters of reference to:

Anil Nanda, MD, FACS  
Professor and Chairman, Department of Neurosurgery  
LSU Health Sciences Center,  
1501 Kings Highway, Shreveport, Louisiana 71130-3932,  
FAX: 318-675-4457  
[ananda@lsuhsc.edu](mailto:ananda@lsuhsc.edu)

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# The Georgia R School

The non-profit **Georgia R School** offers 4-6 month online educational programs and 4-8 week online courses on statistical software packages, including the **R Project Statistical Software** and various partial least squares (**PLS**) **Path Modeling** tools. Our online programs and courses are available to participants world-wide at very reasonable costs.

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- Others . . .

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## Survey Sampling Statistician

Westat is an employee-owned corporation headquartered in the suburbs of Washington, DC (Rockville, Maryland). We provide statistical consulting and survey research to the agencies of the U.S. Government and to a broad range of business and institutional clients. With a strong technical and managerial staff and a long record of quality research, Westat has become one of the leading survey research and statistical consulting organizations in the United States.

Our company was founded in 1961 by three statisticians. The current staff of more than 2,000 includes over 60 statisticians, as well as research, technical, and administrative staff. In addition, our professional staff is supported by data collection and processing personnel situated locally and in field sites around the country. The work atmosphere is open, progressive, and highly conducive to professional growth.

Our statistical efforts continue to expand in areas such as the environment, energy, health, education, and human resources. Westat statisticians are actively involved in teaching graduate-level courses in statistical methods and survey methodology in collaborative arrangements with area colleges and universities.

We are currently recruiting for the following statistical position:

### Survey Sampling Statistician

Job Code 4621BR

Responsibilities include: developing sample designs (determining stratification and allocation to strata; determine sample size based on differences and power; determine optimal clustering; and select sample); selecting and/or constructing appropriate sample frame; developing and documenting weighting plan which includes non-response adjustment and bench-marking; developing and conducting imputation for item nonresponse and estimating sampling errors using appropriate software; writing specifications for programmers; and preparing reports on sample design, weighting procedures and other methodological issues. Candidates would benefit from knowing SAS and other statistical software packages; although candidates are not required to do programming. A master's or doctoral degree in statistics is required with 3 or more years of relevant experience. Coursework in sample survey design is highly desirable.

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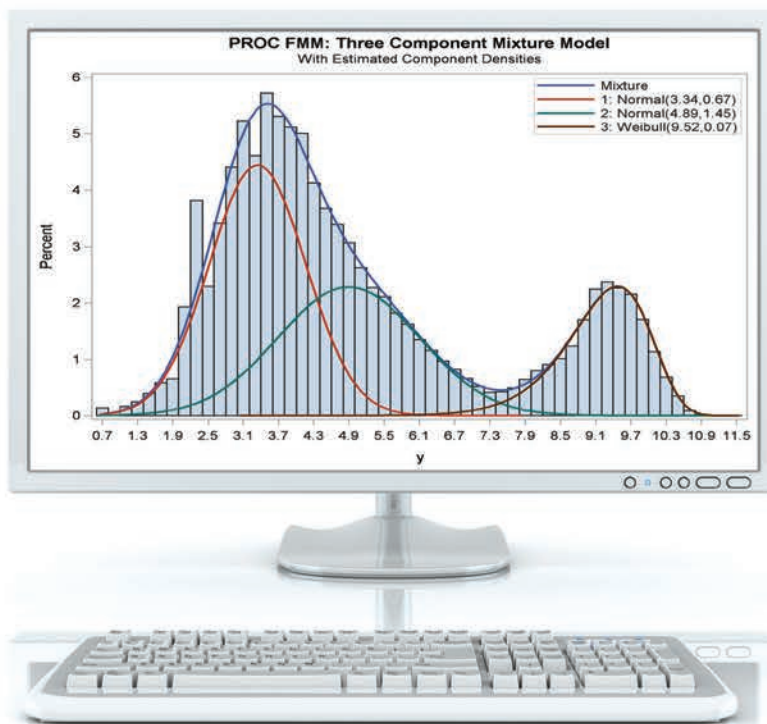
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