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Column Contributors

Funding Opportunities

Federal Budgets and Statistics  p. 19
This column highlights research activities that may be of interest to ASA members. These brief articles include information about new research solicitations and the federal budget for statistics. Comments or suggestions for future articles may be sent to ASA Research and Graduate Education Manager Keith Crank at keith@amstat.org.

Contributing Editor
Keith Crank has a BS in mathematics education and an MS in mathematics from Michigan State University and a PhD in statistics from Purdue University. Prior to joining the ASA, he was a program officer at the National Science Foundation, primarily in the probability program.

Science Policy News

IRS Statistics of Income Gets Good News  p. 21
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.

Contributing Editor
Pierson earned his PhD in physics from the University of Minnesota. He spent eight years in the physics department of Worcester Polytechnic Institute and later became head of government relations at the American Physical Society.

Quotable

“...you’re not punished for asking stupid or irrelevant questions; you’re more encouraged to think on your own.”

Samuel Kou, comparing the American way of teaching to the Chinese way

Member News

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I am proud that our association has about 18,000 members from such diverse backgrounds, but I would love to see our membership be much higher. There are many more statisticians throughout the world, and the benefits, activities, and services the ASA provides are far reaching and important to the future of our profession.

Our journals provide an excellent platform to disseminate research. Our meetings provide an opportunity to exchange ideas and network with others. Our continuing education activities and upcoming accreditation program provide professional development opportunities. We have been vigilant about ethical practice and the proper use of statistics. We are proactively advocating for statistical literacy at all levels and the appropriate use of data in formulating science and public policies. We proudly share our success stories in Amstat News and update "Statisticians in the News" daily at www.amstat.org. Then, there are the many professional benefits our chapters, committees, and sections provide—too many to list here.

As I meet our members and many potential members at various conferences and chapter meetings, it is clear we can enhance mentoring of young statisticians. They are the future of our association and our profession. I continue to benefit from the mentoring I receive from my adviser, deans, colleagues, leaders in our profession, and well-wishers. I feel the same responsibility to help others grow professionally.

Mentoring does not happen by osmosis. Many companies, government organizations, and academic departments have active mentoring programs (see www.amstat.org/sections/govt/JEGAllen.htm). If you are serving as a mentor, formally or informally, I thank you for your service to our younger generation. If you have had an opportunity to mentor, I urge you to look around your organization or within the ASA to find a young statistician to mentor. A member seeking your mentoring is a positive step, and it does not mean he/she is deficient in any way.

Appropriate mentoring can help not only in career development, but also in enhancing confidence and a sense of belonging. With a number of successful statisticians around the world, no statistician needs to feel isolated. Someone you mentor can benefit from learning about your career and personal growth experiences, bumps you may have faced along the way, time management methods you use at work and home, and your networking skills. More importantly, a he or she can benefit from your listening skills. Mentoring is mutually beneficial and personally rewarding.

During the holidays, I attended three conferences in India. Some attendees discussed issues related to young statisticians and appropriate mentoring. MentorNet (see www.mentornet.net) is one organization that was mentioned as a network that matches those looking for mentors with appropriate (volunteer) mentors in all subject areas. It also provides access to a number of articles related to mentoring.

During a conference at the University of Pune, it was clear that students from various parts of the world benefit from reading the articles in Amstat News. Many enjoy reading the personal stories of your career paths. Thank you to those who are contributing these.

It was an honor and a pleasure to be at C. R. Rao’s 90th birthday conference in Hyderabad. He has been making outstanding contributions to the frontiers of statistics and has been a mentor to many young and established statisticians. The mathematical genealogical tree of his descendants is large and continues to grow. He has received
many well-deserved honors, honorary doctorates, and awards. During conferences in Hyderabad and Visakhapatnam, he was “felicitated” in a traditional recognition ceremony in which honorees and their spouses are draped in a shawl and presented with flowers, gifts, and mementos.

During the International Indian Statistical Association conference in Visakhapatnam, the ASA organized two sessions. John Boyer organized a session on agricultural statistics, and I organized one on careers in statistics. During the session on careers in statistics, Sreenivas Bhogle of TEOCO spoke about the divide between statistical training and jobs. Bob Rodriguez of SAS spoke about the importance of training for careers in statistical computing, whereas Roger Liddle of GlaxoSmithKline spoke about training and mentoring in the pharmaceutical industry. ASA Executive Director Ron Wasserstein spoke about various professional development opportunities the ASA provides, especially for young statisticians, and discussed the ASA’s accreditation program. The panel generated a good discussion, focusing on mentoring future problem solvers around the globe.

It is clear that it is important to have regular interaction among all sectors of the ASA. There are many benefits to having a mixture of seminars in academic departments that include speakers from industry and government, in addition to research seminars from other academic departments. During JSM 2009, U.S. Census Bureau Director Bob Groves indicated his willingness to visit academic departments to talk to students and administrations about curriculum and pipeline issues in our profession. Barry Nussbaum of the Environmental Protection Agency reiterated this and has been giving seminars in various academic departments.

It is common to have alumni from various backgrounds mentor students and visit their alma maters to share their experiences. It is also beneficial to invite faculty to give seminars in companies and government organizations. Student visits to companies and government organizations, internships, and graduate industrial traineeships also lead to opportunities for networking and mentoring. The ASA web site; social networking groups; the ASA’s Committee on Minorities; Statistical Partnerships among Academe, Industry, and Government; and ASA sections provide opportunities for such interactions.

Thank you again for mentoring and looking out for our young statisticians. Go hug another statistician today! Let no statistician be isolated this Valentine’s Day or any other day.
Amstat News is now available online in an easier-to-read, interactive format. Gone is the isolated and static PDF of the printed magazine. In its place is a fully HTML version that takes advantage of what the Internet offers today.

Articles from every issue going forward will be collected on the site, creating a comprehensive archive that chronicles the ASA and its members. These articles can be searched in a variety of ways. For instance, clicking on the familiar departments such as Section News, Chapter News, and People News will bring up all the articles in those departments that have been collected. Alternatively, a keyword search will bring up all articles pertaining to that word across departments.

Visitors to Amstat News online also can leave comments about an article, prompting discussion among colleagues about what is important to them.

Last, Amstat News readers can follow the magazine on Twitter at @AmstatNews. This will help them stay in the loop when a new issue is made live.

Explore the site at http://magazine.amstat.org. Read a few articles and leave a comment.

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President Obama recently announced the establishment of National Lab Day, a day to bring together science, technology, engineering, and math (STEM) professionals and teachers who provide high-quality, hands-on, discovery-based lab experiences for students.

To learn how you can become involved, visit www.amstat.org/education/asa-nldresourcepage.cfm.

“Encouraging young people to be makers of things, not just consumers of things.”
—President Barack Obama
ASA Annual Fund Drive Sees Successful Year

Scott Evans, ASA Development Committee Chair

Thanks to the generosity of more than 500 ASA members who made contributions to the ASA’s annual fund this year, the association received more than $25,000.

The 2009 Annual Fund Drive was the first formal fund campaign for the ASA. For many years, the ASA has operated informal fund drives in which members were given the opportunity to make a contribution when renewing their memberships. This year, however, the association instituted a more systematic effort.

The roots of this development campaign go back to 2003, when the ASA hired a consulting firm to evaluate the potential for a comprehensive program. A basic structure was established at that time, but ASA Executive Director Ron Wasserstein and the development committee further evaluated the prospects for growing a development program in 2008. Also volunteering her time was Julia Riseman, a development consultant and wife of ASA member Nick Horton. Recommendations were made to the ASA Board of Directors, which charged the development committee with creating a case statement for the annual fund.
The committee developed a plan for implementation that included continuing the passive solicitation through membership renewals and launching a direct solicitation to selected members. The plan was approved by the board for launch in 2009.

In June of 2009, approximately 2,000 members of the ASA community were contacted through direct solicitation. Targeted members included current and former board members, ASA Fellows, current and former Council of Sections Governing Board and Council of Chapters Governing Board members, senior members, and longtime members. These ASA members were asked to make contributions to one of four funds:

**Promoting the Field of Statistics**: Supporting activities such as continuing education courses, workshops on statistical writing for the media, and advocacy efforts on behalf of the profession in Congress and with the administration.

**Providing Access to the Field of Statistics**: Supporting a variety of activities, including travel funds for students to attend JSM or other conferences, ASA memberships for statisticians in developing countries, and graduate school scholarships for promising statisticians.

**Recognizing Excellence in the Field of Statistics**: Supporting the recognition of excellence in the profession by increasing the funding available for award prizes and by funding special recognition sessions at JSM and elsewhere.

**Future of the ASA Fund**: Gifts designated to “ASA unrestricted funds” that allow the ASA Board to support the association and our profession in many ways.

In response, about 80 members made contributions to the 2009 Annual Fund Drive, totaling about $12,500. In addition, some 450 donors contributed about $13,000 through the membership renewal opportunity, which is slightly higher than last year’s total. Thus, more than $25,000 was given, most of which was designated to the Future of the ASA Fund.

“When I was informed about the ASA fundraising drive,” said ASA member Christine Franklin, “I did not hesitate in donating to this worthy effort. I felt this was my opportunity (in a small way) to give back to the ASA. I’ve been blessed both professionally and personally by the support and advocacy from ASA in promoting statistics education, especially at the K–12 level. So much of what has been achieved nationally in statistics education has been due to the efforts of the ASA and its members.”

Russell Lenth—another active ASA member who has taken leadership roles in section, journal, chapter, and committee activities—said, “The ASA is immensely important in promoting our profession and in providing opportunities for its members. Making a financial contribution is one small way of giving back for all that I have received.”

The 2009 contributions were used to support several important programs, including:

—**Meeting Within a Meeting (MWM)**: A program to reach out and provide training and tools for K–12 teachers.

—**Review of educational standards**: ASA staff are increasingly called upon to comment on and arrange for volunteers to offer advice about curricular standards at the state and national levels.

—**StatFest**: A program to encourage minority college students to pursue a statistics career.

—**Production of “Statistical Significance”**: A developing series of one-page informational brochures highlighting the importance of statistics to a rich variety of fields.
The ASA leadership hopes this campaign will grow in 2010 with an expanded solicitation list and continued contributions. To acknowledge and thank all of the 2009 donors, a list of those donors is provided below.

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Battelle Supports Education Program with $8,000

One of the goals of the American Statistical Association is to improve statistics education at all levels. Improving education is also a goal for Battelle. As a business based on scientific discovery and application with an interest in promoting technological literacy, Battelle vigorously supports science, technology, engineering, and math (STEM) education. Battelle also supports early childhood learning, K–12 programs that encourage curiosity about STEM-based careers, professional development for science and math teachers, and programs that contribute to innovative educational reform.

It is this synergy of goals that has brought the ASA and Battelle together. As a committed supporter of the ASA’s education programs, Battelle recently contributed $8,000 to the ASA in support of the ASA’s Educational Ambassadorship Program, which supports statistical education on an international scale.

Last year, Battelle supported a project to create the infrastructure for the STatistics Education Web (STEW). Through this program, the ASA plans to reach out to K–12 mathematics and science teachers who teach statistics concepts in their classrooms. STEW will be an online resource for peer-reviewed lesson plans for K–12 teachers. The website will be maintained by the ASA and accessible to K–12 teachers throughout the world.

In 2007, Battelle supported Meeting Within a Meeting (MWM), a workshop for K–12 mathematics and science teachers that was developed to help teachers meet current mathematics and science requirements.

Battelle’s commitment to providing a core foundation in STEM education remains a high-priority initiative. Furthermore, the ASA’s education programs help Battelle reach its goal of being a catalyst for sustainable positive change.

As the world’s largest independent research and development organization, Battelle provides innovative solutions to the world’s most pressing needs in energy and the environment, national security, and health and the life sciences. Battelle conducts more than $5.2 billion in global R&D annually through contract research, laboratory management, and technology commercialization. Headquartered in Columbus, Ohio, Battelle is one of the nation’s leading charitable trusts focusing on societal and economic impact and actively supporting and promoting science and math education. For more information about Battelle, visit www.battelle.org.

Committee on Nominations
Nominations Needed for President-Elect, Vice President Candidates

Nominations are being sought for ASA president-elect and vice president candidates for the 2011 election year.

Think about your colleagues and associates who are members of the ASA and would make good candidates for these positions. Then, nominate your choices following the guideline that the president-elect will be nominated from the academic sector and the vice president will be nominated from the industry sector.

Nominations may be directed to 2010 Committee on Nominations chair, Robert Mason, at robert.mason@swri.org or ASA special projects coordinator, Monica Clark, at monica.clark@amstat.org. All nominations are due March 8.

From left: Martha Aliaga, ASA director of education; Joyce Johnson, vice president of Health Sciences at Battelle; and Ron Wasserstein, ASA executive director
NIGMS Seeks Applications for Research Training Program

The National Institute of General Medical Sciences (NIGMS) invites applications for the biostatistics predoctoral research training program. Biostatistics is an essential discipline in advancing and integrating biomedical, behavioral, and clinical research. According to a 2003 National Institutes of Health (NIH) workshop composed of leading researchers in biostatistics, bioinformatics, and biomedical research, the demand for biostatisticians far exceeds the supply of scientists who are trained in biostatistical theory and rapidly emerging biomedical research technologies.

In 2004, NIGMS spearheaded a trans-NIH effort to increase the number of trained biostatisticians through its biostatistics predoctoral research training program. The program supports predoctoral training in biostatistical theory and evolving methodologies related to basic biomedical research, including areas such as bioinformatics; genetics; molecular biology; cellular processes and physiology; and epidemiological, clinical, and behavioral studies.

The NIGMS training program differs from other programs by emphasizing broad interdisciplinary training. It complements the more disease-focused NIH biostatistics training programs by providing balance between the need for biostatistics training tailored to a specific disease with those developing biostatistical formalisms for emerging research areas.

NIGMS typically supports graduate students on training grants for one to three years and during their early years of graduate training leading to a PhD degree. This timing provides participants with flexibility in the selection of courses, rotations, research fields, and mentors. Only one NIGMS biostatistics predoctoral research training grant is allowed at an eligible institution.

The program uses the NIH Institutional Training Grant (T32) mechanism and follows the omnibus NIH T32 program announcement (PA-10-036), which only accepts applications submitted electronically through www.grants.gov (see NOT-OD-10-008).

The program is a National Research Service Award (NRSA), which has been NIH’s primary means of supporting predoctoral and postdoctoral research training programs at domestic institutions of higher education since 1974. NRSA policy states eligible individuals “must be a citizen or a noncitizen national of the United States or have been lawfully admitted for permanent residence at the time of appointment.” Further, at the level of predoctoral training, the program is for “individuals who have a baccalaureate degree and are enrolled in a doctoral program leading to either a PhD or combined PhD.” These rules thereby exclude training grant support for foreign students and those in a master’s degree program. However, existence of this
biostatistics training grant offers eligible institutions a means to leverage funds from other sources to support foreign and MS-level students. Moreover, the activities supported by the training grant will generally be made available to students not supported by the biostatistics training program, an approach that broadens impact and extends benefits to a wider cadre of students.

Successful NIGMS-supported biostatistics predoctoral research training applications should address an interdisciplinary program built on a strong foundation in statistical theory and methodology and provide a clear understanding of basic biological research in relation to epidemiological, clinical, and behavioral research. Applications should address the challenges of melding statistics and biology at both the faculty and student levels.

Training grant activities should include cutting-edge research opportunities, coursework, and seminars that focus on biology and statistics, laboratory rotations, training in the responsible conduct of research, and proactive mentoring. Additional program activities that could enhance the training experience include retreats, journal clubs, and opportunities for students to present their research progress.

Programs are expected to monitor student progress and ensure timely completion of PhD degree requirements. Applicants must provide information describing evaluation plans for ongoing assessment of the training program and demonstrate efforts to recruit and retain a diverse trainee population, including students from under-represented racial and ethnic minority groups and those with disabilities. Emphasis is placed on applications that already have established training in biostatistics at the graduate level.

Call for Proposals

NSF, CBMS Announce Conference Series

The National Science Foundation will hold six conferences jointly with the Conference Board of the Mathematical Sciences in the spring and summer of 2010. These conferences, which aim to stimulate interest and activity in mathematical research, include the following:

—Mathematical and Numerical Treatment of Fluid Flow and Transport in Porous Media
—Cluster Algebras and Applications
—The Interplay Between Convex Geometry and Harmonic Analysis
—Probabilistic and Combinatorial Approach in Analysis

Each of the five-day conferences will feature 10 lectures on a topic of important current research in a focused area of the mathematical sciences. A monograph will be published afterward.

Also, proposals for 2011 conferences will be accepted until April 23, 2010. When submitting a proposal, submitters should keep in mind the four distinguishing characteristics of the conference series, as follows:

—Focus on a single, important, and timely area of research by a leading practitioner
—Publish monograph afterward for a wide audience
—Provide strong emphasis on local research activity
—Review all proposals for quality, breadth, and timeliness

Colleges or universities with research competence in the field of the proposal are eligible to submit a proposal. Institutions interested in upgrading or improving their research efforts are especially encouraged to apply.

For more information about the conferences or guidelines for proposal preparation and submission, visit www.cbmsweb.org or contact CBMS, 1529 Eighteenth Street NW, Washington, DC 20036; (202) 293-1170; rosier@georgetown.edu; lkolbe@maa.org.
Technometrics Highlights

Special Issue Features Anomaly Detection

David M. Steinberg, Technometrics Editor

The February 2010 issue of Technometrics features several articles that highlight some of the fascinating applications in which statistical data analysis is used to detect unusual circumstances, or anomalies. The articles explore the methods developed to address these problems and describe challenges that lie ahead.

The first two articles focus on fraud detection. Agus Sudjianto, Sheela Nair, Ming Yuan, Aijun Zhang, Daniel Kern, and Fernando Cela-Díaz describe problems and statistical solutions for detecting financial crime. Although these crimes affect millions of people every year, they are nonetheless rare events. The volume and complexity of financial data require not only effective algorithms, but also efficient training and execution. Criminals deliberately attempt to conceal the nature of their actions and quickly change their strategies over time, resulting in severe class overlapping and concept drift. In some cases, legal constraints and investigation delays make it impossible to verify suspected crimes in a timely manner. The authors discuss some of the classic statistical techniques that have been applied, as well as more recent machine learning and data mining algorithms. Many illustrative examples are described, with emphasis on two important types of financial crimes: fraud and money laundering.

The second article—by Richard A. Becker, Chris Volinsky, and Allan R. Wilks—is titled “Fraud Detection in Telecommunications: History and Lessons Learned.” This paper reviews the history of fraud detection at AT&T, which was one of the first companies to address fraud in a systematic way to protect its revenue stream. The authors discuss some of the major fraud schemes and techniques employed to identify them, leading to generic conclusions about fraud detection. Specifically, they advocate the use of simple, understandable models, heavy use of visualization, a flexible environment, the importance of data management, and the need to keep humans in the loop.

These two papers are followed by a commentary from David Hand, who expands on the contributions and provides his own perspectives from involvement in a number of related applications.

The third, and final, article on anomaly detection, by Galit Shmueli and Howard Burkom, looks at a quite different application area: biosurveillance. This activity involves monitoring a wide range of pre-diagnostic and diagnostic data so we will enhance our ability to detect, investigate, and respond to disease outbreaks. Statistical control charts, which have been a central tool in classic disease surveillance, have migrated into modern biosurveillance. However, the new types of data monitored, the processes underlying these data, and the application context all deviate from the industrial setting for which these tools were originally designed. Assumptions of normality, independence, and stationarity are typically violated in syndromic time series; target values of process parameters are time-dependent and hard to define; and data labeling is ambiguous in the sense that outbreak periods are not clearly defined or known. Additional challenges include multiplicity of

Staff Spotlight
Jojuana Wilkins

As the newest member of the ASA’s customer service team, I can say it’s a pleasure to work here. When I first arrived, I felt like a deer caught in the headlights, but after being here for a couple of months, I feel much better as I learn the processes and get to know the staff members and their roles and responsibilities.

For the past 15 years, my work has been with associations. I can say this is the first association I have worked for that has had more than 15 people working in the office. I enjoy working with the members and the database, and I look forward to learning more.

On a personal note, I enjoy cooking, reading, and spending time with my entire family (including my mom, dad, four sisters and their families, and all my in-laws). My immediate family consists of my husband, two children, and five dogs.
in several dimensions, performance evaluation, and practical system usage and requirements. The article focuses mainly on the monitoring of time series for early alerting of anomalies, with a brief summary of methods to detect significant spatial and spatiotemporal case clusters.

The remaining articles in the issue explore a number of areas. Adrian E. Raftery, Miroslav Kárný, and Pavel Ettler consider the problem of online prediction when it is uncertain what prediction model is the best. They develop a method called Dynamic Model Averaging (DMA), in which a state space model for the parameters of each model is combined with a Markov chain model for the correct model. This allows the ‘correct’ model to vary over time. The state space and Markov chain models are both specified in terms of forgetting, leading to a highly parsimonious representation. When the model and parameters do not change, DMA is a recursive implementation of standard Bayesian model averaging. The method is applied to the problem of predicting the output strip thickness for a cold rolling mill, where the output is measured with a time delay. When only a small number of physically motivated models were considered and one was clearly best, the method quickly converged to the best model, with small cost for model uncertainty. When model uncertainty and the number of models were large, the method ensured that the penalty for model uncertainty was small. At the beginning of the process, when control is most difficult, DMA over a large model space led to better predictions than the single best-performing physically motivated model.

In “Incorporating Time-Dependent Source Profiles Using the Dirichlet Distribution in Multivariate Receptor Models,” Matthew J. Heaton, C. Shane Reese, and William F. Christensen use models to estimate profiles and contributions of pollution sources from concentrations of pollutants such as particulate matter in the air. The majority of previous approaches to multivariate receptor modeling assume pollution source profiles are constant through time. In an effort to relax this assumption, this article uses the Dirichlet distribution in a dynamic linear receptor model for pollution source profiles. The model is evaluated using simulated data sets and then applied to a physical data set of chemical species concentrations measured at the U.S. Environmental Protection Agency’s St. Louis-Midwest supersite.

The next two papers look at measurement systems. The first—by Tirthankar Dasgupta, Arden Miller, and C. F. Jeff Wu—is titled “Robust Design, Modeling, and Optimization of Measurement Systems.” The authors present an integrated approach for estimation and reduction of measurement variation in systems with a linear signal-response relationship. Noise factors are classified into a few distinct categories based on their impact on the measurement system. A random coefficients model that accounts for the effect of control factors and each category of noise factors on the signal-response relationship is proposed. A suitable performance measure is developed using this general model, and conditions under which it reduces to the usual dynamic signal-to-noise ratio are discussed. Two data analysis strategies for modeling and optimization are proposed and compared. The effectiveness of the proposed method is demonstrated with a simulation study and by application to data from an industrial experiment.

The next article, by Jeroen de Mast and Wessel N. van Wieringen, is titled “Modeling and Evaluating Repeatability and Reproducibility of Ordinal Classifications.” The authors criticize existing methods for studying ordinal measurement processes. They then propose a new approach, rooted in item response theory (IRT), a well-established reliability method in psychometrics and education. Fitted IRT models can be presented graphically, but also allow the calculation of probabilities of correct ordering and consistent classification. In addition, the model-based approach allows refined diagnostics, giving the user insight into the workings of a classification procedure. The approach is illustrated

Contributed Papers Sought for Symposium

The 2010 International Methodology Symposium, titled “Social Statistics: The Interplay Among Censuses, Surveys, and Administrative Data,” will take place at the Crowne Plaza Hotel in Ottawa, Ontario, Canada, from October 26–29. Members of the community from private organizations, government, or academia are invited to attend, particularly if they have a special interest in statistical or methodological issues resulting from the use of multiple sources of data.

Proposals must be submitted by email to symposium2010@statcan.gc.ca by March 31.

For more information, visit www.statcan.gc.ca/conferences/symposium2010/index-eng.htm.
by a real-life industrial example, and the proposed analysis is contrasted with two popular alternatives.

Grzegorz Wylupek proposes a new solution for the general nonparametric k-sample problem. His paper, “Data-Driven k-Sample Tests,” introduces a net of semiparametric models, solves the testing problem for members of this approximating net, and then combines the resulting statistics via model selection rules. This approach leads to a flexible and powerful class of tests that are sensitive to a wide range of potential differences among the groups. Simulations show that an omnibus version of the test has power comparable to existing k-sample tests for detecting changes of location or scale and is more powerful for more complex changes. The author briefly discusses a variant of the new solution focused on detecting high-frequency alternations.

The final article—by Yue Cui, James S. Hodges, Xiaoxiao Kong, and Bradley P. Carlin, is titled “Partitioning Degrees of Freedom in Hierarchical and Other Richly Parameterized Models.” A measure of a hierarchical model’s complexity—degrees of freedom (DF)—that is consistent with definitions for scatterplot smoothers, can be interpreted in terms of simple models, and enables control of a fit’s complexity by means of a prior distribution on complexity that has already been developed. DF describes complexity of the whole fitted model, but it is generally unclear how to allocate DF to individual effects. This article gives a new definition of DF for arbitrary normal-error linear hierarchical models that naturally partitions the \( n \) observations into DF for individual effects and error. The new conception of an effect’s DF is the ratio of the effect’s modeled variance matrix to the total variance matrix. This gives a way to describe the sizes of different parts of a model (e.g., spatial clustering vs. heterogeneity), place DF-based priors on smoothing parameters, and describe how a smoothed effect competes with other effects. It also avoids difficulties with the most common definition of DF for residuals.
ASA-SIAM Series

Representatives Available at 2010 Conferences

During 2010, you will have the opportunity to meet with a series representative at the following meetings:

- International Biometric Society’s Eastern North American Region Spring Meeting, New Orleans, Louisiana, March 21–24
- SIAM International Conference on Data Mining, Columbus, Ohio, April 29–May 1
- Joint Statistical Meetings, Vancouver, British Columbia, Canada, July 31–August 5
- 66th Deming Conference, December

Series books also will be available for purchase at a 20%–30% discount (with free shipping for onsite orders). Contact Sara Murphy, series acquisitions editor, at murphy@siam.org to meet at any of these conferences to discuss a book project, suggest new book topics for the series, or ask any questions about the series.

At any time during the year, you are encouraged to contact series editorial board members with questions about or suggestions for the series. Current editorial board members include the following:

- Lisa LaVange (editor-in-chief), lisa_lavange@unc.edu
- Marie Davidian, davidian@stat.ncsu.edu
- John Eltinge, eltinge.john@bls.gov
- Barry Graubard, graubarb@mail.nih.gov
- George Michailidis, gmichail@umich.edu
- Maura Stokes, maura.stokes@sas.com
- Linda J. Young, LJYoung@ufl.edu

LaVange was recently reappointed for a second term as series editor-in-chief by both the ASA Committee on Publications and SIAM’s vice president of publications. Her second term of office will run from January 1, 2011, through December 31, 2013. LaVange has been an active part of the series since her first term as an editorial board member began in 2002 and continues to be a driving force behind the growth of the series.
Federal Budgets and Statistics

Keith Crank, ASA Research and Graduate Education Manager

By the time you read this column, you may have heard news reports about the president’s fiscal year 2011 budget being sent to Congress. But, as I write, that is still in the future. What I’m going to write about are the fiscal year 2010 appropriations just passed by Congress.

After receiving the president’s request for the fiscal year 2010 budget back in May (delayed from February because of the transition from the Bush administration to the Obama administration), Congress managed to complete five of the 12 appropriations bills that provide funds to keep the federal government operating. (Only one of the five was completed by the beginning of the 2010 fiscal year.) After passing two continuing resolutions to keep the federal government from shutting down, Congress finally passed an omnibus appropriations bill in December that provided funds through the end of the 2010 fiscal year. Continuing resolutions provide funding for a brief time, usually at the same level as the previous year’s appropriations.

So, what does the remainder of fiscal year 2010 have in store for statisticians? Let me start with the funding agencies of primary interest: the National Science Foundation (NSF) and National Institutes of Health (NIH). NSF’s fiscal year 2010 appropriations are $6.9 billion, of which $5.6 billion is for research and related activities (R&RA) and $0.9 billion is for education and human resources (EHR). (Most of the remaining funding goes to agency operations and award management.) This compares to the president’s request for $7.0 billion overall, with $5.7 billion for R&RA and $0.9 billion for EHR.

The R&RA appropriation is an increase of $434.8 million over fiscal year 2009, whereas the president’s request was for an increase of $550.1 million. (I am ignoring the American Reinvestment and Recovery Act (ARRA) funding for fiscal year 2009 in these comparisons.) If this is pro-rated across the requested increases for the various research areas at NSF, the Division of Mathematical Sciences (DMS), which is where the Statistics Program resides, would see an increase of $16 million, or 7.0% over fiscal year 2009. (The NSF budget for DMS essentially lumps the entire division budget into a single line item, so it’s impossible to say exactly what impact the fiscal year 2010 appropriation will have on the Statistics Program’s budget.)

At NIH, there is no single place one can identify as a main source of funding for statistics. Overall, NIH will receive $31.0 billion in appropriations. This is a $692 million (2.3%) increase over the fiscal year 2009 appropriations and a $250 million increase over the president’s request. For the four largest institutes, the percentage increases from fiscal year 2009 are 2.7% for National Cancer Institute; National Heart, Lung, and Blood Institute; and National Institute of General Medical Sciences and 2.4% for the National Institute of Allergy and Infectious Diseases (NIAID). (The increase for NIAID is 2.6%, if the funds to be transferred to the global fund for HIV/AIDS, malaria, and tuberculosis are not included.)

The U.S. Census Bureau will see an increase of $4.1 billion, primarily for the 2010 decennial census. This is in line with the president’s request.

Although the 2010 appropriations for NSF are below the president’s request, they are still fairly good. Currently, the American Association for the Advancement of Science’s projections for the 2011 president’s request would have NSF increasing by about 2.9%. There is reason to be optimistic. In addition to the appropriations bills, Congress also prepares a report that provides additional guidance for spending the funds. The report that accompanies the 2010 appropriations for NSF states (in part) the following:

The conferees are concerned with continuity in the level of support for research and development at the National Science Foundation and reiterate concerns expressed by the House that the request for fiscal year 2011 should represent at least a 7% increase for NSF over the conference agreement level for fiscal year 2010 in order to sustain the planned doubling of the foundation’s budget.

While this is no guarantee that NSF will receive a 7% increase in 2011, the makeup of Congress and the Appropriations Committee should not change much before the next appropriations bill is passed.

To contact me, send an email to keith@amstat.org. Questions and comments are always welcome.
Budget Cuts
Keeping You from Attending a Conference?

Let the conference come to you. Video presentations from the 2009 Salford Data Mining Conference are available online. Topics covered include what went wrong in the financial markets, best practice analytics in banking and insurance underwriting, fraud detection, discovering unexploded ordinance in minefields, various topics in healthcare and bioinformatics, predictive analytics for optimal placement of web advertisements in ad networks, genetic research, and techniques for building better models.

Learn more at www.salford-systems.com/budgetcuts.php
Employees in the IRS Statistics of Income (SOI) Division, one of 14 primary federal statistical agencies, received encouraging news in mid-December via an email saying their IT resources would remain under the control of their umbrella organization: Research, Analysis, and Statistics (RAS). As readers may recall from my July 2009 column, the IRS seemed to be moving toward absorbing SOI’s IT into the much larger IRS IT infrastructure as part of a move to make their IT system more secure.

The ASA, together with members of the SOI Advisory Panel, worked hard to forestall such plans because of the ramifications for SOI’s effectiveness and efficiency and will continue to monitor the situation as details unfold.

In their email to SOI and other RAS employees, IRS Chief Technology Officer Terence V. Milholland and Acting RAS Director Patricia H. McGuire said the plan was largely to move most RAS servers to a secure facility in a separate location from other IT systems, have RAS employees continue to administer all RAS systems and applications, and keep RAS IT staff in the RAS organization.

Many details remain to be worked out, but most individuals familiar with the situation regard this as a positive step. Thomas Petska, ASA Fellow and retired SOI director, said, “I think that this is the best outcome we could envision, so I am cautiously optimistic, although a memorandum of understanding to document this in writing is still needed.” Other SOI Advisory Panel members concurred, adding it is important to remain vigilant as the plan is developed.

Hints of the change in IRS plans for SOI’s IT resources were in the air at the fall meeting of the SOI Advisory Panel. A representative from the IRS IT services reported there was a shift when they realized the uniqueness of SOI. More than once, I heard the metaphor of “having to break the mold” when considering SOI’s IT resources.

The challenge of IT control was also a factor in the principle “strong position of independence” being elevated this year in the National Academies’ Principles and Practices for a Federal Statistical Agency (fourth edition). The timing was excellent, as the ASA used this document in its meetings on the SOI issue. I understand the USDA’s National Agricultural Statistics Service (NASS) leadership also used Principles and Practices when discussing their IT centralization scheme with USDA IT officials.

To recap the reason why control of its IT resources is so important to a statistical agency, I quote 2009 ASA President Sally Morton from a letter she wrote to John Holdren, President Obama’s science advisor:

First, for a statistical agency to keep the trust of its data providers, it must be seen as insulated from other entities. Such insulation is lost without control of IT resources. Second, to provide timely reports and respond nimbly to requests, statistical agencies must have ready, direct access to their data, which would not be the case if employees have to access their data through a centralized IT office that
Visibility and Impact
Workgroup wants to hear your thoughts

Climategate, mammograms, Elementary and Secondary Education Act (ESEA), employment and financial sector issues … How can the ASA be prepared to speak about an emerging issue? ASA President Sastry Pantula has appointed a workgroup to address this aspect of the ASA strategic plan. Chaired by 2009 ASA President Sally Morton, the group is interested in hearing your thoughts.

The group’s charge is to “standardize the process for identifying emerging issues and for providing timely response in the areas of public policy and science policy in collaboration with the ASA director of science policy and the other statistical associations.”

One could classify emerging issues as those that can be anticipated in a relatively straightforward manner and those that are more difficult to anticipate. ESEA would fit into the former category, Climategate into the latter, and mammograms into both.

Commenting on difficult-to-anticipate topics is important and would help raise the profile of statistics. However, because any such ASA statement would require significant input from members—all of whom have busy schedules—and ASA Board consideration, it would be difficult to produce a statement quickly enough to be relevant. Therefore, I suggest the ASA concentrate on a process for developing statements for easier-to-anticipate topics. Concentrating on such topics would also help build the ASA’s capacity to tackle the difficult-to-anticipate topics.

What process should the ASA follow to anticipate what the science policy topics will be six to eight months out? With 18,000 members spread throughout industry, academia, and government and working on a vast array of topics in many environments, the ASA is well positioned to anticipate up-and-coming issues.

A science colleague of mine likes to quote Wayne Gretsky: “A great hockey player plays where the puck is going to be.” Members of the workgroup would appreciate your help in determining where the policy puck will be. If you have suggestions, please share them with me or any of the following workgroup members:

Ann Cannon, acannon@cornellcollege.edu
Mike Cohen, mpcohen@juno.com
Mary Gray, mgray@american.edu
Sally Morton, morton@rti.org
Duane Steffey, dsteffey@exponent.com
David Williamson, dxw2@cdc.gov
Alyson Wilson, awilson@iastate.edu

may have different priorities. Finally, the greatest strength of a statistical agency is its personnel, who consist of multidisciplinary project teams that work successfully hand-in-hand with years of institutional knowledge, training, and experience. Dismantling these teams would undermine the effectiveness and efficiency of a statistical agency and greatly lessen its ability to maintain sustainable human capital.

While this news is certainly important to ASA members at SOI and across the federal government, I think the issue is relevant to all members. The federal statistical agencies’ products represent perhaps the highest-profile applications of statistics, as they are widely reported and have an influence on policy and the financial markets. Therefore, it is vital for the ASA to help ensure the federal statistical agencies have the resources they need to do their jobs effectively and efficiently.

Autonomy, Stature, Leadership

Control of IT resources is just one of the federal statistics issues the ASA has been monitoring. Morton also wrote letters to key administration officials on autonomy and stature issues for the Bureau of Justice Statistics (BJS) and National Center for Education Statistics (NCES). For both, the principal requests were for the agency heads to have sufficient stature within the host department and final authority over all agency products, including press releases.

The final authority on agency products was withdrawn for BJS in the Patriot Act and subsequent legislation. For NCES, this authority was made ambiguous in the 2002 Institute of Education Sciences (IES) legislation and subsequent implementation.

Sufficient stature within the host department is important for several reasons. First, as detailed in a November letter from Morton to Secretary of Education Arne Duncan, direct access by the agency head (e.g., BJS director or NCES commissioner) to a department head (e.g., attorney general or secretary of education, respectively) and participation in policy meetings of senior department officials would help better inform the department’s policies, which is especially important in this administration with its emphasis on data-driven decisionmaking. The statistics agency head also could contribute to informing department-wide decisionmaking because of his or her command of an extraordinary array of information.
Second, as Morton further discussed in her letter, by hearing first-hand the senior-level policy discussions, the statistics agency head would be better equipped to direct agency resources that provide data for informing new policy.

Finally, sufficient stature within a department is necessary for the agency head to speak for the integrity of the agency’s products, protect against outside infringement, and ensure adequate budgeting.

ASA staff will continue to work on these issues, as Congress is expected to undertake legislation on the Department of Justice and Department of Education IES in the coming year.

Ensuring leadership at federal statistics agencies is also a priority. Morton wrote letters to members of the Obama administration urging quick appointment of heads for the U.S. Census Bureau, BJS, and NCES and listing qualities the nominees should possess. Upon the nomination of Robert M. Groves to head the U.S. Census Bureau, Morton signed letters in support of his quick confirmation. Morton also sent a letter of support for James P. Lynch, nominee for BJS director, who is a former chair of the ASA Committee on Law and Justice Statistics. The administration has yet to nominate a NCES commissioner.

**Budgets and Other Issues**

The ASA also has been supportive of the budgets for the federal statistics agencies, where much of the news for fiscal year 2010 (FY10) was positive. Many agencies received double-digit percentage increases.

As Keith Crank, ASA’s research and graduate education manager, reports in his column on Page 19, the U.S. Census Bureau was funded at $7.325 billion, nearly the level requested by the administration and well above the FY09 level of $4.1 billion, largely to provide for the 2010 census.

BJS saw its budget increase by $15 million to implement redesigned methodology for the National Crime Victimization Survey. NCES received a 10% increase to $108.5 million, and the National Center for Health Statistics received an increase of 10% to $138.7 million.

The budget for the Bureau of Economic Analysis, on the other hand, was increased by only $3.5 million to $93.5 million, with Congress funding just two of the four proposed initiatives. The Energy Information Administration’s budget was held constant at $110.6 million, having received none of its $22 million requested increase.

ASA Science Policy Actions

ASA president sends letter to NIH Director Francis Collins on the need to train and support more biostatisticians
ASA president sends letters to senior Michigan education officials urging more statistics in new curriculum standards

BLS, NASS, and the Economic Research Service were all funded near their requested amounts: $611.4 million (an increase of approximately 2%), $161.83 million (6%), and 82.5 million (2%), respectively.

The ASA also responded to an amendment to a Senate appropriations bill by Sen. David Vitter (R-LA) and Sen. Bob Bennett (R-UT) that would add a question on immigration status to the decennial census questionnaire. Concerned about the impact of an untested question added at the 11th hour, the ASA, in coordination with other census stakeholders, contacted the staff of senators regarded as swing voters and asked members in Louisiana and Utah to communicate their concerns to Vitter and Bennett.

With the ASA’s science policy activities still ramping up, I see room for expanding upon the efforts reported here. I also would emphasize that we rely on input from our members on how to act and on what to act. If you have suggestions, please contact me at pierson@amstat.org.

Judges Wanted for ASA Project Competition

The ASA/NCTM Joint Committee on Curriculum in Statistics and Probability is seeking judges for the ASA Project Competition. Judging takes place via email during the summer and requires about four hours. If interested, email Megan Mocko at mmece@stat.ufl.edu or call (352) 273-2975.
The Institute of Statistics and Applied Economics (ISAE) was established in July of 1969 with initial support from the United Nations Development Programme to meet the need for high-level training of professional statisticians in eastern and southern Africa. ISAE coordinated the Bachelor of Science degree in statistics before the Bachelor of Statistics degree was started in 1975. The program’s express purpose was to train professional statisticians for government statistical services. Since its inception, ISAE has trained more than 3,000 professional statisticians, quantitative economists, actuarial scientists, and population scientists.

The Millennium Development Goals, New Partnership for Africa’s Development, Poverty Eradication Action Plan, and other national policies provide the framework for ISAE, and ISAE operates under Makerere University on all academic matters via the Board of Advisory Council, comprised of the vice chancellor and academic registrar of the university and representatives from the regional governments of Ethiopia, Kenya, Lesotho, Namibia, South Africa, Swaziland, Tanzania, Uganda, Zambia, and Zimbabwe.

In 1985, the Postgraduate Diploma in statistics was launched, followed by the Master of Statistics in 1987. ISAE has expanded its undergraduate and postgraduate programs to accommodate both government and privately sponsored students. The undergraduate programs now include a Bachelor of Science degree in quantitative economics, actuarial science, business statistics, and population studies. Postgraduate programs include the Postgraduate Diploma in demography; Master of Science in quantitative economics, population and reproductive health, and population studies; and Master of Arts in demography and population and development.

All programs emphasize practical aspects and on-the-job training, with a requisite level of theory and methods. In 2007, the university made 10-week field attachment training for undergraduate students mandatory, and more than 50% of the students were attached to central government ministries, local government departments, civil society organizations, and private-sector organizations. The field attachment was organized in collaboration with the Uganda Bureau of Statistics, with financial support from the European Union.

To address the skill gaps among the working community, ISAE conducts the following biannual short courses:

- Regional Workshop on Economic Statistics and National Accounts
- Regional Workshop on Monitoring and Evaluation of Population Programs
- A Practical Approach to Data Analysis Using STATA and SPSS for Researchers and Private Consultants
- Data Analysis Using EPIINFO
- Regional Workshop on Agricultural Statistics
- Data Processing and Data Communication in Africa
- Compilation and Computation of Consumer Price Indices

These courses are internally developed and designed based on the needs of stakeholders. They focus on practical skills in applied statistics, economics, and data management.

Key research areas of ISAE staff members are socioeconomic surveys, longitudinal studies, actuarial science, population issues, economic statistics, information and technological communication, and HIV/AIDS.

ISAE also runs a professional consultancy bureau, Makerere Statistical Consult Limited, which undertakes research in statistics, policy, population, computing, and applied economics. The team of consultants is comprised of senior academic staff members who have provided services for a number of governments, international organizations, nongovernmental organizations, and the private sector. For more information about ISAE, visit www.statistics.mak.ac.ug.
Grace Wahba

Grace Wahba is the inaugural recipient of Cornell University’s Distinguished Alumni Award. The award honors the many outstanding Cornell alumni who have made influential, far-reaching contributions to statistics.

Wahba, IJ Schoenberg-Hilldale Professor of Statistics at the University of Wisconsin-Madison, earned a bachelor’s in mathematics from Cornell. In addition to receiving the Distinguished Alumni Award, Wahba is a member of the National Academy of Sciences; a Fellow of five societies—including the American Statistical Association and Institute of Mathematical Statistics—and a recipient of the Elizabeth Scott Award, Gottfried E. Noether Senior Scholar Award, Emanuel and Carol Parzen Prize for Statistical Innovation, and Wald Lectureship. She also received an honorary DSc from The University of Chicago.


Shelemyahu Zacks

Nitis Mukhopadhyay, University of Connecticut-Storrs

The department of mathematical sciences at Binghamton University hosted a mini-conference December 5, 2009, to honor statistics professor Shelemyahu Zacks. Some of his colleagues, collaborators, friends, and former students gathered to celebrate his life and more than 50 years of research. Ten invited paper presentations were made, covering diverse topics.

Zacks grew up in Tel Aviv, Israel, and earned his bachelor’s in statistics, mathematics, and sociology from Hebrew University in 1955. He went on to earn a master’s in operations research and statistics from the Technion in 1960 and a PhD in operations research from Columbia University in 1962. He published his first research paper in the bulletin of the Research Council of Israel in 1957 on wind-produced energy and its relation to wind regime, followed by numerous influential papers. He has authored or co-authored seven books, including The Theory of Statistical Inference, published by Wiley in 1971.

Zacks has received many honors and awards, including Fellow of the American Statistical Association, Institute of Mathematical Statistics, and American Association for the Advancement of Science. He is an elected member of the International Statistical Institute and received an honorary PhD from the University of Haifa. Zacks received the 2008 Abraham Wald Prize in Sequential Analysis, jointly with Nitis Mukhopadhyay, for their paper, “Distributions of Sequential and Two-Stage Stopping Times for Fixed-Width Confidence Intervals in Bernoulli Trials: Application in Reliability.”

Celebrating Zacks’ distinguished career of more than 50 years and his path-breaking research contributions, “Recent Advances in Theory and Applications of Statistics” includes 44 invited papers written by Zacks’ friends, collaborators, admirers, and former students. The Festschrift was published in two issues of Communications in Statistics - Theory & Methods.

Zacks and his wife, Hanna, with their two sons and their families gathered for the dinner at the end of the mini conference. The Festschrift and a commemorative plaque were presented to Zacks at the dinner.

More about the contributions and career of Zacks can be read in “A Conversation with Shelemyahu Zacks,” written by Mukhopadhyay and published in Statistical Science.
Obituary

Mortimer B. Keats

Mortimer Keats died on November 30, 2009, in Schenectady, New York, at the age of 98.

Keats had an illustrious career as an applied statistician in government and industry. Holding degrees from Columbia University and The George Washington University, he worked directly for W. Edwards Deming at the U.S. Census Bureau in the late 1930s and was a close associate of other renowned statisticians, including Sam Greenhouse, Phil Hauser, Bill Madow, Nathan Mantel, and Leslie Simon.

Keats subsequently worked for General Electric, where he was manager of product assurance at the Knolls Atomic Power Laboratory. He retired to Phoenix, Arizona.

Obituary

Erich Lehmann

Erich Lehmann, a major figure in the field of statistics, died on September 12, 2009, at the age of 91. Lehmann, who taught in the statistics department at the University of California, Berkeley, touched the lives of many people in statistics and beyond. He was a leading figure in the second generation of statisticians, following the establishment of the modern field by Jerzy Neyman, R. A. Fisher, and Abraham Wald before World War II.

As is usual after a period of explosive innovation, confusion reigned. It was Lehmann’s great talent to clear the fog and build a coherent theoretical structure. This was reflected in his great books, *Testing Statistical Hypotheses* (1959) and *Theory of Point Estimation* (1983), which were the centerpieces of graduate statistics education for most of the last half of the century and have been translated into many languages. The books also added considerably to these theoretical structures, and his research advanced many other areas of theoretical statistics, including the following:

- Concepts of dependence, starting a new literature
- Concepts of unbiasedness, again leading to a new literature
- Rank-based nonparametric methods, in a series of papers—many in collaboration with Joseph Hodges Jr.—with some surprising results
- Illuminations of historical issues in statistical theory

Lehmann achieved all the major honors awarded in the field and beyond: the prestigious Wald and Fisher lectureships, the presidency of the Institute of Mathematical Statistics (IMS), and the editorship of IMS’ main journal, *The Annals of Mathematical Statistics*. He was granted three Guggenheim fellowships in 1955, 1966, and 1980 and was elected to the American Academy of Arts and Sciences in 1975 and the National Academy of Sciences in 1978. The University of Leiden and University of Chicago awarded him honorary doctorates. At Berkeley, he held Miller professorships twice and served as department chair.

Born in Strasbourg, France, in 1917, Lehmann was raised in Frankfurt am Main. Fleeing the Nazis with his family in 1933, he graduated from high school in Switzerland and attended college in Cambridge, England. He enrolled in Berkeley as a graduate student in 1940 and never left, save for stints in the Air Force during World War II—when he was stationed in Guam—and leaves at Columbia, Princeton, and Stanford.

Earning his PhD in 1946, he embarked on a teaching career that included the supervision of more than 40 doctoral students, several of whom became leaders in the next generation of statisticians. This achievement was due not only to his great scientific stature, but also his remarkable personal qualities. He was kind and generous of spirit and had an unusual sensitivity to the feelings of others and a great astuteness about the world, what could be achieved, and how to do it. As a consequence, his influence on his students and colleagues went beyond the scientific. They honored him with a Festschrift (1983) for his 65th birthday, a series of three Lehmann symposia (1992, 1994, 1997), and a forthcoming volume of selected works.

In addition to his masterpieces, Lehmann published three important, but less advanced, texts: *Basic Concepts of Statistics* (with his longtime collaborator and friend J. L. Hodges Jr.), *Nonparametrics: Statistics Based on Ranks*, and *Elements of Large Sample Theory*. After a second edition of his classic *Testing Statistical Hypotheses* in 1986, he recruited young collaborators for further editions of his major texts—George Casella for *Estimation* in 1998 and Joe Romano for a third edition of *Testing* in 2005. These were major revisions that brought the books back to the frontiers of research.

In his last decade, he turned his energies to the history of the field, in whose development he played such an important part, publishing his professional autobiography, *Reminiscences of a Statistician: The Company I Kept*, and an account of the productive rivalry between Fisher and Neyman, to be published by Springer and tentatively titled *Fisher, Neyman, and the Creation of Classical Statistics*. He also enjoyed a lifelong passion for literature and, in retirement, translated stories by favorite authors such as Adalbert Stifter and Wilhelm Raabe, seeking to give them a wider audience than they previously enjoyed. At the time of his death, he was working with Fritz Scholz, a former student, on a new edition of his *Nonparametrics*, to be used in conjunction with the popular R statistical language.

He is survived by his wife, Juliet Popper Shaffer, and a loving blended family that includes his three children, three step-children, eight grandchildren, and two great-grandchildren, with a third on the way.

Donations in memory of Lehmann can be made online at www.stat.berkeley.edu/52 or mailed to Maria Torralba, University of California, Berkeley, Statistics Department, 367 Evans Hall, Berkeley, CA 94720.
American Statistical Association
Business and Economic Statistics Section

2010 Student Travel Award Application

The Business and Economic Statistics Section (B&E) of the American Statistical Association (ASA) will offer up to two travel awards (amount to be determined, but roughly $350) for students in doctoral programs in business, economics, econometrics, statistics, or allied disciplines. Support is offered for students to attend the Joint Statistical Meetings, to be held in Vancouver, British Columbia, July 31—August 5, 2010. Applicants either presenting a paper or participating in a poster session will receive extra consideration.

Applications must include an endorsement and a letter of support from a faculty adviser or member of the B&E Section. Winners are expected to attend JSM sessions. If you have any questions, please contact Stuart Scott (scott.stuart@bls.gov).

Name: ______________________________________________________________________________________________________

University and Department: _____________________________________________________________________________________

Address: ____________________________________________________________________________________________________

City, State, ZIP: _______________________________________________________________________________________________

Email Address: _______________________________________________________ Home phone: ____________________________

(Expected) Graduation Date/Degree: ______________________________________________________________________________

Are you presenting a paper or participating in a poster session at the conference? YES ❑ NO ❑

Have you previously attended any professional meeting on statistics, economics, or a related discipline? YES ❑ NO ❑. If YES, please describe (meeting, location, dates):

____________________________________________________________________________________________________________

____________________________________________________________________________________________________________

Signature of Applicant __________________________________________________________Date____________________________

Support from Current B&E Member or Faculty Adviser:
As a current B&E member or faculty adviser, I endorse this student’s request.

Signature ___________________________________________ Printed Name ___________________________ Date __________________

APPLICATION CHECKLIST – ATTACH THE FOLLOWING:
1. Copy of most recent transcript or advising report from your university
2. Abstract of paper/poster (500 word maximum), if presenting a paper or poster
3. Letter of support from faculty advisor or supporting B&E member (limit 2 pages)
4. Cover letter describing your career goals and how you would expect to benefit by receiving this award (limit 2 pages)

Applications will be accepted until March 31, 2010, and should be sent by mail or email to:
Richard A. Davis, 2010 Section Chair, Department of Statistics, Columbia University, 1255 Amsterdam Ave., New York, NY 10027; rdavis@stat.columbia.edu
Spatial Statistics and Modeling
C. Gaetan, Università Ca’ Foscari di Venezia Dpt., Venezia, Italy; X. Guyon, Université Paris I Sams, Paris, France
This book covers the best-known spatial models for three types of spatial data: geostatistical data (stationarity, intrinsic models, variograms, spatial regression and space-time models), areal data (Gibbs-Markov fields and spatial auto-regression) and point pattern data (Poisson, Cox, Gibbs and Markov point processes). Important statistical methods and their asymptotic properties are described, including estimation in geostatistics, autocorrelation and second-order statistics, maximum likelihood methods, approximate inference using the pseudo-likelihood or Monte-Carlo simulation, statistics for point processes and Bayesian hierarchical models. A chapter is devoted to Markov chain Monte Carlo simulation (Gibbs sampler, Metropolis-Hastings algorithms and exact simulation). A large number of examples are studied with R, and each chapter ends with a set of exercises.

Contents ► Second order spatial models and geostatistics ► Gibbs-Markov random fields on networks ► Spatial point processes ► Simulation of spatial models ► Statistics for spatial models


Statistical Elements of Designed Experiments
Helge Toutenburg, University of Munich, Germany; Shalabh, Indian Institute of Technology, Kanpur, India
This textbook presents the design and analysis of experiments that comprise the aspects of classical theory for continuous response, modern procedures for categorical response, and especially for correlated categorical response.


Design of Observational Studies
R. P. Rosenbaum, University of Pennsylvania, Philadelphia, PA, USA
Design of Observational Studies is both an introduction to statistical inference in observational studies and a detailed discussion of the principles that guide the design of these studies.

Contents ► Introduction ► Matching to control bias from measured covariates ► Addressing bias from covariates that were not measured


Modern Infectious Disease Epidemiology
A. Krämer, University of Bielefeld, Bielefeld, Germany; M. Kretzschmar, University Medical Center, Utrecht, The Netherlands; K. Krickeberg, Manggli, France (Eds.)
Hardly a day goes by without news concerning infectious disease threats. Currently the spectre of a pandemic of influenza A/H1N1 is raising its head, and debates are taking place about vaccinating young girls against human papilloma virus. For an evidence-based and responsible communication of infectious disease topics to avoid misunderstandings and overreaction of the public, we need solid scientific knowledge and an understanding of all aspects of infectious diseases and their control. The book introduces the reader to methodological aspects of epidemiology that are specific for infectious diseases and provides insight into the epidemiology of some classes of infectious diseases characterized by their main modes of transmission. This choice of topics bridges the gap between scientific research on the clinical, biological, mathematical, social and economic aspects of infectious diseases and their applications in public health. The book will help readers understand the impact of infectious diseases on modern society and the instruments that policy makers have to deal with these challenges.


Elements of Adaptive Testing
W. J. Linden, CIB/McGraw-Hill, Monterey, CA, USA; C. A. Glas, University of Twente, Enschede, The Netherlands (Eds.)
This book covers such key features of adaptive testing as item selection and ability estimation, adaptive testing with multidimensional abilities, sequencing adaptive test batteries, multistage adaptive testing, item-pool design and maintenance, estimation of item and item-family parameters, item and person fit, as well as adaptive mastery and classification testing. It also shows how these features are used in the daily operations of some large-scale adaptive testing programs.


Spectral Analysis of Large Dimensional Random Matrices
Z. Bai, National University of Singapore, Singapore; J. W. Silverstein, North Carolina State University, Raleigh, North Carolina
This second edition includes two additional chapters, one on the authors’ results on the limiting behavior of eigenvectors of sample covariance matrices, another on applications to wireless communications and finance. While attempting to bring this edition up-to-date on recent work, it also provides summaries of other areas which are typically considered part of the general field of random matrix theory.

Contents ► Introduction ► Wigner matrices and semicircular law ► Sample correlation matrices, Marchenko-Pastur law ► Product of two random matrices ► Limits of extreme eigenvalues ► Spectrum separation ► Semicircle law for Hadamard products ► Convergence rates of ESD ► CLT for linear spectral statistics ► Eigenvectors of sample covariance matrices ► Circular law ► Some applications of RMT

My term as 2009 chair of the Government Statistics Section (GSS) has now ended. I was honored to be the first Canadian to serve in this capacity. My colleagues on the executive committee had to cope with my French accent … and my sense of humor.

The end of my tenure also coincides with my retirement from Statistics Canada. I have decided to resign from my job as director general, operations, and start a second life … as a very young retiree, of course. Wish me good luck in my new undertakings.

Although I have had an interesting and diversified career, the job of government statistician is not immediately attractive to all. GSS has been active in sponsoring sessions for the 2010 Joint Statistical Meetings in Vancouver, British Columbia, to promote what we do. There will be two GSS invited sessions that involve heads of statistical agencies—one session that is more U.S.-centric and one that is international in nature. I had the pleasure of organizing the latter.

I am pleased to report that Brian Pink, chief statistician from Australia, and Jil Matheson, national statistician from the United Kingdom, will come all the way from their respective countries to meet us in Vancouver. They will join Munir Sheikh, chief statistician from Canada; Keith Hall, commissioner of the Bureau of Labor Statistics; and Cynthia Clark, administrator of the National Agricultural Statistics Service, to form a panel addressing how government statistics make a difference. The panel will be moderated by 2009 ASA President Sally Morton. I hope you will come in great numbers to show your appreciation for the commitment made by these busy people.

On the same wave length, let me tell you that GSS is keen to get involved in the organization of events and conferences. We are committed to being a permanent sponsor for the International Conference on Establishment Surveys (ICES). This successful event takes place every three or four years and explores the current state of the art in survey methodology for business, institutional, and agricultural surveys. The next conference (ICES IV) will take place in Montréal in June of 2012.

GSS also is discussing sponsoring another promising international conference, though I will keep the details to myself until the contracts have been signed. The fact that the finances of the section are in good health allows us to take these initiatives and offer such benefits to our members.

I also am proud to report that we now have more than 1,000 members. Membership has steadily increased over the years, and I encourage all current GSS members to continue spreading the good word (i.e., to rally other statisticians to join the section). We reach our members through our monthly electronic newsletter. You are welcome to submit articles by contacting GSS newsletter editor, Natalya Verbitsky Savitz, at NVSavitz@mathematica-mpr.com.
Also, do not miss our regular articles in *Amstat News* (including our summaries of COPAFS meetings).

GSS recently took over the management of the Jeanne E. Griffith Mentoring Award. This award encourages mentoring of junior government staff with respect to statistics. Stephanie Shipp and Beth Kilss did an excellent job setting up the procedures for managing the award, including publicity, solicitation of nominations, selection of recipients, and raising of funds to cover the annual honoraria and expenses associated with the award.

GSS also sponsors or cosponsors the Pat Doyle Award, Roger Herriot Award, and Wray Jackson Smith Scholarship, in addition to a JSM student paper competition and JSM poster competition. I want to encourage members to submit names as potential recipients for these awards. There is a monetary contribution that accompanies most; details can be found at [www.amstat.org/sections/govt](http://www.amstat.org/sections/govt).

GSS had an excellent program at JSM 2009 (thanks to Sunghee Lee and Lisa Blumerman). We successfully launched our first poster competition, with one winner and two honorable mentions. We also succeeded in having six sold-out roundtables. Participants seem to have enjoyed the choice of subjects and the discussions with the roundtable leaders. I encourage you to try one next year, if you have not already. However, there is a fee associated with them, the breakfast ones being cheaper than the lunch ones.

Finally, I want to thank all my colleagues on the executive committee and all contributors to the activities of the section for making 2009 a successful year. I especially want to thank the three members who are leaving the executive committee—Stephanie Shipp, Sunghee Lee, and Carolee Bush—for their contributions over the years. Finally, I want to thank our eight sponsors for their support: Bureau of Labor Statistics, National Center for Health Statistics, Statistics of Income, National Science Foundation – Division of Science Resources Statistics, U.S. Census Bureau, National Agricultural Statistics Service, Bureau of Economic Analysis, and Social Security Administration.

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

*March 1, 2010*

**Edward C. Bryant Scholarship for an Outstanding Graduate Student in Survey Statistics**

Kimberly Weems, chair, Edward C. Bryant Scholarship Committee

[weems@stat.ncsu.edu](mailto:weems@stat.ncsu.edu)

*March 1, 2010*

**Excellence in Statistical Reporting Award**

Telba Z. Irony, chair, Excellence in Statistical Reporting Award Committee

[telba.irony@fda.hhs.org](mailto:telba.irony@fda.hhs.org)

**March 5, 2010**

**SPAIG Award**

Jai Won Choi, chair, SPAIG Award Committee

[jchoi@mcg.edu](mailto:jchoi@mcg.edu)

*March 15, 2010*

**Founders Award**

Sally C. Morton, chair, Founders Award Committee

[morton@rti.org](mailto:morton@rti.org)

**March 15, 2010**

**Statistics in Chemistry Award**

Ken Goldberg, chair, Statistics in Chemistry Award Committee

[kgoldber@its.jnj.com](mailto:kgoldber@its.jnj.com)

*March 15, 2010*

**Samuel S. Wilks Award**

Daniel Zelterman, chair, Samuel S. Wilks Award Committee

[daniel.zelterman@yale.edu](mailto:daniel.zelterman@yale.edu)

*March 15, 2010*

**W. J. Youden Award in Interlaboratory Testing**

Chih-Ming Wang, chair, W. J. Youden Award Committee

[jwang@boulder.nist.gov](mailto:jwang@boulder.nist.gov)

*March 15, 2010*

**Waller Education Award**

June Morita, chair, Waller Education Award Committee

[june@stat.washington.edu](mailto:june@stat.washington.edu)
Statistics and the Environment

Section to Celebrate 20th Anniversary

Dale Zimmerman, ENVR Chair

This year, the section turns 20. ENVR’s vision now, as it was in 1990, is to be a dynamic national resource that actively influences the following:

—Development and application of statistical methods for addressing environmental problems
—Interpretation and communication of environmental data and findings
—Identification, study, and resolution of statistical problems leading to cogent policies addressing public health and ecological, economic, and other consequences of environmental contamination and change
—Advancement of research and education in environmental statistics

With more than 800 members, ENVR members conduct a number of activities and initiatives to realize the section’s vision. One of these is to put together a consistently exciting, timely program of technical sessions on environmental statistics at the annual Joint Statistical Meetings. Last year’s program was more popular than ever, as every one of our invited sessions was standing room only.

The 2010 ENVR invited program will include presentations on topics as diverse as testing for climate change-caused shifts in forest fire ignitions, modeling of environmental extremes, statistical inference for food webs, and analysis of global warming data. If history is any guide, the invited program will be complemented by a number of interesting ENVR-sponsored contributed and topic-contributed sessions.

Another ENVR activity that fits squarely within the section’s vision is sponsoring periodic workshops, which have focused on hierarchical modeling (2000), spatial statistics and GIS (2002), computational environmetrics (2004), multivariate spatial statistics (2006), and environmental monitoring (2008).

In keeping with the section’s bottom-up—rather than top-down—organizational philosophy, proposals are being sought for the next workshop, to be held in 2011. The National Center for Atmospheric Research has offered to be the workshop site, but proposals are welcome for a venue anywhere in North America. Contact Dale Zimmerman, section chair, at dale-zimmerman@uiowa.edu with ideas.

Looking Forward

Two initiatives Zimmerman will be working on this year are forming a climate change policy advisory committee with the ASA’s Section on Risk Analysis and Director of Science Policy Steve Pierson that will advise Congress on climate change issues and increasing the section’s student membership.

Although the section’s overall number of members is healthy, it lags behind most other sections in its percentage of student members. The ASA recently

Section Officers

2010
Dale Zimmerman, chair
Jennifer Hoeting, chair-elect
Gretchen Moisen, past chair
Joel Reynolds, secretary
William Christensen, treasurer
Jun Zhu, publications chair
Margaret Short, publications chair-elect
Petrutza Caragea, program chair
Devin Johnson, program chair-elect
Alix Gitelman, Council on Sections representative
Don Stevens, liaison officer

2009
Gretchen Moisen, chair
Dale Zimmerman, chair-elect
Lance Waller, past chair
Sarah Nusser, secretary
Joel Reynolds, treasurer
Jun Zhu, publications chair
Petrutza Caragea, program chair
Alix Gitelman, Council on Sections representative
Ron McRoberts, newsletter editor
Don Stevens, liaison officer
Jean Opsomer, webmaster
began an online social network that operates similarly to Facebook. Zimmerman wonders if ENVR members, particularly students, would find a dedicated ENVR online community useful for posting information and exchanging ideas. He also will be making a number of personal contacts with students to espouse the benefits of section membership. This year, the section will continue making several awards, including the Student Paper Competition Award, JSM Presentation Award, Young Investigator Award, and Distinguished Achievement Award.

In addition to communicating to section members via this monthly Amstat News article, ENVR publishes an annual newsletter. From now on, this newsletter will be distributed electronically. When each new issue is published, an email will be sent out to members with a link to the section’s web site (www.amstat-online.org/sections/envr), where all issues can be found.

**Award Nominations Wanted**

Nominations are being sought for the Distinguished Achievement Award and the new Young Investigator Award. Both are given in recognition of outstanding contributions to the development of methods, issues, concepts, applications, and initiatives of environmental statistics. The Young Investigators Award is meant to encourage and recognize younger members of the environmental statistics community.

The section uses a broad definition of environmental statistics—from theoretical/foundational through applications and policy—and seeks to recognize the full range of activities of academic, government, and industrial statisticians and scientists engaged in statistics and the environment. Environmental statistics is interdisciplinary, and outstanding contributions may occur outside of traditional niches defined by disciplines.

To be eligible for a Distinguished Achievement Award, nominees must have made distinguished contributions to environmental statistics; joined ENVR at least three years prior to June 1, 2009; and not have received the award in a previous year (see www.amstat-online.org/sections/envr/daawp.html).

Criteria for the Young Investigators Award include having made distinguished contributions to environmental statistics; being a current member of ENVR; not being a recipient of the Distinguished Achievement Award from a previous year; and not having reached his or her 41st birthday during the calendar year of the award. (In the special case of an individual who has received his or her terminal degree in statistics fewer than 12 years prior to the nomination deadline, a nominee will be eligible who has not yet reached his or her 46th birthday during the calendar year of the award.)

For both awards, the committee considers only those members for whom nominations are submitted. Committee members do not offer nominations, but encourage members to make a thorough search for good candidates.

Nomination materials should consist of a nomination letter featuring the nominee’s contributions to environmental statistics, a CV of five or fewer pages for the nominee, up to three supporting letters, and a clear statement for which of the two awards the nominee should be considered. If being considered for the Young Investigators Award, submit the birth date of the nominee. The committee will use the “Jonathanian” method of calculating the age of the nominee.

Nominations must be received by March 15 as a PDF document (preferred) or Word file. If submitted as hard copy, send the original and five copies. Submit nominations to Stephen L. Rathbun at rathbun@uga.edu or Department of Epidemiology and Biostatistics, 132B, Coverdell Center, University of Georgia, Athens, GA 30602.

The awards committee will make the selection, and successful nominees will receive their awards at the ENVR business meeting and reception during the Joint Statistical Meetings in Vancouver in August of 2010. Questions regarding the award should be addressed to Rathbun at rathbun@uga.edu.
Ball State University will host the 33rd annual Midwest Biopharmaceutical Statistics Workshop (MBSW), cosponsored by the Biopharmaceutical Section, from May 24–26.

This year’s workshop theme revolves around how the role of statistics is adapting to change within the pharmaceutical industry. To start, Max Kuhn of Pfizer will present a half-day short course, titled Predictive Modeling with R. In the May 24 afternoon plenary session, speakers will focus on evolving career path opportunities for statisticians and new statistical opportunities in biotherapeutics.

Four parallel tracks will follow on May 25 and 26. The clinical track, organized by Steve Gulyas of Eli Lilly, will feature sessions on statistical methods and strategies for ethnic comparisons in multiregional clinical trials, evidence synthesis, and industry’s response to change.

The pre-clinical track, organized by Bill Pikounis of J&J, will look at modern scopes of pre-clinical statistics. This track will include sessions on new frontiers in drug-combination modeling, immune response and related antibody assays, and topics in pharmacokinetic/pharmacodynamic modeling.

The post-approval track, organized by Patrick Ryan of GSK, will focus on evolutions in post-approval monitoring of medicines and include sessions on identification of nonspecified conditions, monitoring of health outcomes of interest, and comparative effectiveness research.

The nonclinical track, organized by Greg Steeno of Pfizer, will include sessions on advanced modeling of accelerated stability studies, experimental design in CMC applications, and bioassay in a changing regulatory environment.

During the Tuesday lunch hour, there will be a contributed poster session, chaired by Krishna Padmanabhan of Pfizer. Posters will be considered on any biopharmaceutical statistical topic; abstracts are due April 19.

Students are especially encouraged to participate in the MBSW activities. A limited number of student travel scholarships are available, with preference given to students who present posters. The best student poster, as judged by a committee, will receive the Charles Sampson Award, named in honor of a founder and guiding force behind MBSW.

Additional opportunities to meet speakers and network will take place during the mixers on May 24 and 25. Aaron Brown, author of *The Poker Face of Wall Street*, will be the banquet speaker on May 25.

For more information, contact Melvin Munsaka, publicity chair, at mmunsaka@tgrd.com; Kjell Johnson, workshop chair, at Kjell.Johnson@pfizer.com; or Dale Umbach, local arrangements chair, at dumbach@bsu.edu.

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2010 Poster and Project Competitions

Introduce K–12 students to the world of statistics through the 2010 poster and project competitions, directed by the ASA/NCTM Joint Committee on Curriculum in Statistics and Probability. The competitions, now in their 21st and 24th years, respectively, offer opportunities for students to formulate questions, gather and display data, and draw conclusions from data.

Winners are recognized with plaques, cash prizes, certificates, and calculators (donated by Texas Instruments) and their names are published in *Amstat News*.

Posters judged in four grade-level categories (K–3, 4–6, 7–9, and 10–12) are due every year on April 1. Projects are due on April 1 for grades 4–6 and 7–9 and on May 30 for grades 10–12. More information about the poster and project competitions, including entry forms and two instructional webinars, is available at www.amstat.org/education/posterprojects/index.cfm.
Biometrics

Section Welcomes New Officers

Edited by Page Moore, Biometrics Section Publications Officer

Help Needed at JSM

Want to get more involved? Consider volunteering to chair a JSM session. If interested, contact the section’s 2010 program chair, Hormuzd Katki, at katkih@mail.nih.gov.

The section chair for 2010 is Barry Graubard, a senior investigator in the Biostatistics Branch of the Division of Cancer Epidemiology and Genetics at the National Cancer Institute (NCI). Graubard works on statistical methods for epidemiological and genetic analysis of data from national health surveys with complex sample designs, collaborating in such areas of cancer and public health research as diet and body size related to cancer and other causes of mortality, cancer screening, cancer surveillance, epidemiology of testicular cancer, and family history of cancer. He earned his PhD in mathematics from the University of Maryland and has been at NCI since 1990.

Chair-elect for 2011 is Jack Lee, a professor of biostatistics in the department of biostatistics at The University of Texas M.D. Anderson Cancer Center. He also holds an adjunct professor position at Rice University and The University of Texas School of Public Health. He earned his PhD in biostatistics from the University of California at Los Angeles.

Lee’s research interests include design and analysis of clinical trials, survival analysis, longitudinal data analysis, statistical computation/graphics, statistical methods for determining drug interaction in combination studies, and cancer chemoprevention.

Tom Belin continues to serve as secretary/treasurer. Belin is a professor in the UCLA Department of Biostatistics, where he has worked on incomplete data methods and in areas such as mental health research, cancer prevention and control, health services research, and public health dentistry. He earned his PhD in statistics in 1991 from Harvard.

Hormuzd Katki is the JSM 2010 section program chair. A staff scientist in the Biostatistics Branch of the Division of Cancer Epidemiology and Genetics at the National Cancer Institute, he earned his PhD in biostatistics from The Johns Hopkins University. His primary research interests are in individualized models to predict risk of disease (cervical cancer) or of carrying highly penetrant mutations (BRCA1/2), two-phase designs for epidemiological studies nested within cohorts (R package NestedCohort), and statistical issues involving cancer related to human papilloma virus.

Liang Li is the 2010 ENAR meetings section program chair. An associate staff member in the department of quantitative health sciences at the Cleveland Clinic, he earned his PhD in statistics from the University of Wisconsin-Madison in 2003. Li’s main areas of research include measurement error models, varying coefficient models, joint analysis of longitudinal and survival data, and statistical applications in cardiac and thoracic surgeries.

Mike Daniels is the Council of Sections representative for 2008–2010 and professor and chair in the department of statistics at the University of Florida. He earned his doctorate from Harvard. Daniels’ research interests include (Bayesian) methodology for longitudinal and missing data; methodology for estimating dependence; and applications in cancer, the environment, behavioral research, aging, and animal welfare.

Denise Roe is the Council of Sections representative for 2009–2011 and a professor in the epidemiology and biostatistics division of the Mel and Enid Zuckerman College of Public Health at The University of Arizona. She earned a master’s in biometrics from the University of Colorado and a PhD in biostatistics from UCLA. Roe’s research interests include developing and evaluating statistical methods useful in clinical trials, prevention studies, pharmacokinetics, and longitudinal studies. She collaborates with cancer and public health researchers in the design, conduct, and statistical analysis of clinical, prevention, and laboratory studies.

Mousumi Banerjee is the Council of Sections representative for 2010–2012 and a research associate professor in the department of biostatistics at the University of Michigan School of Public Health. She is also a member of the UM Comprehensive Cancer Center. Banerjee earned her PhD in statistics from the University of Wisconsin-Madison. Her research interests include tree-structured regression and ensemble methods for censored data, survival analysis with competing risks, and multilevel models in health services research applications.

Jerry Heatley is the continuing education chair and senior manager of clinical data systems at Thoratec Corporation. Prior to joining Thoratec, Heatley worked as a research associate in statistics for the Lahey Clinic Medical Center.

Bonnie LaFleur is chair of the strategic initiatives committee. She earned her doctorate in biometrics in 1999 from the University of Colorado in Denver and is on the faculty in the division of...
Page Moore is the publications officer and a faculty member in the department of biostatistics at the University of Arkansas for Medical Sciences. She earned her doctorate in statistics from Baylor University in 2006. Her research interests include multiple imputation techniques, longitudinal data analysis, computational statistics, and clinical trial design.

Gerald Beck is the section’s webmaster and a staff member in the department of quantitative health sciences at the Cleveland Clinic. His primary interest is in the design, conduct, and analysis of clinical trials. He serves as principal investigator or co-investigator of data coordinating centers for multicenter clinical studies supported by the National Institutes of Health, including the dialysis access consortium and hemodialysis study.

Nominations Sought
Do you know a young investigator who submitted an abstract for the 2010 Joint Statistical Meetings? If so, you might mention that the ASA Biometrics Section is seeking applications for the 2010 David P. Byar Young Investigator Award. This annual award is given to a young investigator for best emerging work to be presented during JSM. The award commemorates the late David Byar, a biostatistician who made significant contributions to the development and application of statistical methods and was esteemed as an exceptional mentor during his career at the National Cancer Institute. The winner will receive a $1,500 award. Additionally, the section may provide travel awards to the authors of other outstanding papers submitted to the competition.

Applicants must have held a doctorate in statistics, biostatistics, or a related quantitative field for three or fewer years as of April 1 of the current year, or be enrolled as a doctoral student in statistics or biostatistics and in active pursuit of a doctoral degree. They also must be current members of the ASA Biometrics Section and first author of the paper submitted. (Membership in the ASA does not automatically confer section membership. Applicants may join at the time of submission for a $5 annual membership fee.) The paper may be submitted to a journal or under review, but may not have appeared online or in print at the time of the application or have been accepted for publication as of January 1. Also, the paper may not have been submitted to any other ASA section student/young investigator award competition. Finally, applicants must be scheduled to present the submitted paper at JSM 2010 in Vancouver, BC, Canada, as a talk or poster presentation.

By March 1, applicants should complete their application by submitting a cover letter certifying that they meet the eligibility requirements and are not submitting the paper to another ASA section student/young investigator award competition, a current CV, and one copy of the finished paper. All materials must be submitted electronically to Dan Heitjan, section chair, at dheitjan@upenn.edu.

The 2010 awards committee is composed of the current and past section chairs and chair-elect, as well as three individuals appointed by the section chairs. More information can be found on the section web page, easily accessed by clicking on the “Section” tab at the top of www.amstat.org.

### Statistics in Defense and National Security

**Nominations Sought for Distinguished Achievement Award**

Nominations are needed for the Distinguished Achievement Award, presented to a member of the statistics community by the Section on Statistics in Defense and National Security. The purpose of the award is to recognize an outstanding accomplishment or a record of sustained contributions at the intersection of the statistics profession and national defense or security. Any member of the section is allowed to nominate.

A nomination should include a short description of the basis for the award, contact information for both the nominator and nominee, and suggested text for the certificate. A maximum of five seconding letters submitted in PDF format are welcome.

The deadline for nominations is **March 15**. The award will be presented during the 2010 Joint Statistical Meetings in Vancouver, BC, Canada.

This recognition does not include a financial award. Unsuccessful nominations from previous years are not, and will not be, carried forward, so new nomination packages should be prepared. Electronic nominations are preferred. Email nominations along with any questions to Myron Katzoff at mjk5@cdc.gov.
The Business and Economic Statistics Section announces the 2010 Zellner Thesis Award competition. The award is for the best PhD thesis dealing with an applied problem in business and economic statistics and is intended to recognize outstanding work by promising young researchers in the field. The winner of the award, which consists of a $1,500 prize, will be announced at JSM 2010 in August, and a portion of the winning thesis will be eligible for publication in JBES.

Topics
The range of topics includes econometric methods, statistical problems in forecasting, seasonal adjustment, data quality, empirical studies including finance, IO, health, labor, general micro and macroeconomic analysis, and policy evaluations. Theses in the areas of computation, simulation, and graphics are eligible as long as the research is of direct interest to applied workers.

Criteria
Review standards place substantial weight on research with significant results, high-quality methodological work, substantial empirical content, and good exposition. The research should be of immediate and practical value for applications in business and economic statistics.

The editors of JBES consult with the current section chair and chair-elect to form the awards committee from the section membership and editorial board of JBES.

Eligibility
Theses are eligible for the Zellner Award if they were defended from January 2008 to December 2009 and have not previously been considered for the award. An unbound copy must be sent by March 31 to each of the following:

- Johnathan Wright, The Johns Hopkins University, Department of Economics, 440 Mergenthaler Hall, 3400 N. Charles St., Baltimore, MD 21218
- Keisuke Hirano, University of Arizona, Department of Economics, 401 McClelland Hall, 1130 E. Helen St., Tucson, AZ 85721-0108
- Richard Davis, Columbia University, 1255 Amsterdam Ave., MC 4690, New York, NY 10027

The award is named for Arnold Zellner, past chair of the section, past president of the ASA, and founding editor of JBES. For more information, visit www.amstat.org/sections/bus_econ/zellner.html or send an email to one of the JBES editors at jbes-asa@hotmail.com.
2010

February

16–19—SIMMAC International Symposium on Mathematical Methods Applied to the Sciences, San Jose, Costa Rica

SIMMAC will cover data analysis, multivariate statistics, clustering and classification, probability, stochastic processes, financial mathematics, stochastic control, optimization, operations research, approximation, numerical analysis, dynamic systems, differential equations, modeling, biomathematics, and applications. For more information, visit www.cimpa.ucr.ac.cr/simmac.html or contact Javier Trejos, C.U. Rodrigo Facio, San Jose, International 02060, Costa Rica; 00.506.2511-5889; simmac.cimpa@ucr.ac.cr.

23–24—Evolution of Clinical Data Management, Washington, DC

This conference will deliver practical ideas and solutions to help manufacturers and CROs improve their data management processes and increase efficiency and time to market. For more information, visit www.arena-international.com/pharma.datamanagementusa or contact Melissa Fuentes, 55-57 North Wharf Road, London, W2 1LA, UK; +44 (0) 20 7936 6677; melissafuentes@arena-international.com.

17–20—Conference on Frontier of Statistical Decisionmaking and Bayesian Analysis

This conference consists of plenary, invited, and poster sessions. Plenary speakers include Donald Berry, Lawrence Brown, Persi Diaconis, Stephen Fienberg, and Alan Gelfand. The conference will provide an overview of the past, present, and future developments of statistical decisionmaking and Bayesian analysis. Prior to the conference, short courses on various statistical topics will be offered. For more information, visit http://bergerconference2010.utsa.edu or contact Keying Ye at Keying.Ye@utsa.edu.

March

17–19—IAENG International Conference on Data Mining and Applications 2010, Hong Kong, China

This conference will be held under the International MultiConference of Engineers and Computer Scientists 2010. The IMECS 2010 is organized by the International Association of Engineers (IAENG) and serves as a good platform for researchers. For more information, visit www.iaeng.org/IMECS2010/ICDMA2010.html or contact IAENG Secretariat, Unit 1, 1/F; 37-39 Hung To Road, Hong Kong, International HK, Hong Kong; (852) 3169-3427; imecs@iaeng.org.

22—A Celebration of the Contributions of Donald A. Berry, New Orleans, Louisiana

In honor of Donald A. Berry and his contributions to the statistics and health-related research communities, two invited sessions and a dinner will be held during ENAR 2010. Invited speakers include Jim Berger, Janet Witte, Steven Goodman, Giovanni Parmigiani, Michael Krams, Telba Irony, and Dalene Stangl. The sessions will overview Berry’s contributions and discuss the future of clinical trials.

23–26—DAGStat2010: Statistics Under One Umbrella, Dortmund, Germany

DAGStat is a network of scientific and professional organizations that develop and promote statistical theory and methodology. The aim of the working group is to offer a panel for shared activities and public relations to reach a stronger cognition of statistics. Lectures will cover aspects of theoretical and applied statistics. For more information, visit www.statistik.tu-dortmund.de/DAGStat2010en or contact Jörg Rahnenführer, Vogelpothsweg 87, Dortmund, International 44227, Germany; +49 231 755 3121; rahnenfuehrer@statistik.tu-dortmund.de.

25–26—Conference on Resampling Methods and High-Dimensional Data, College Station, Texas

This conference aims to bring together researchers working in resampling methods and high-dimensional data. It will provide a unique platform for taking stock of recent developments in each area and exploring the limits of resampling methods in a high-dimensional setting. Keynote speakers are Peter Bickel, Jianqing Fan, Peter Hall, and Bin Yu. For more information, visit www.stat.tamu.edu/Spring-Conf-2010 or contact Soumendra Lahiri, Dept. of Statistics, Texas A&M University, College Station, TX 77845; (979) 845-3141; snlahiri@stat.tamu.edu.


This conference will bring together members of the statistical research community from across the Midwest. It is inclusive of theoretical, computational, and applied work. Students are especially encouraged to participate. Participation is limited by space, so all participants must register at www.stat.uchicago.edu/Midwest/2010. For more information, contact Steven MacEachern, Dept. of Statistics, 404 Cockins Hall, 1958 Neil Ave., Columbus, OH 43210; snm@stat.osu.edu.
April

7–9—MAF2010 - Mathematical and Statistical Methods for Actuarial Sciences and Finance, Ravello, Italy
The aim of this conference is to provide new theoretical and methodological results and significant applications in actuarial sciences and finance by the capabilities of the interdisciplinary mathematical and statistical approach. The conference will cover a variety of subjects in actuarial science and financial fields. Open to academics and professionals, the conference is designed to promote the cooperation between theoreticians and practitioners. For more information, visit maf2010.unisa.it or contact Marcella Niglio, Via Ponte Don Melillo, Fisciano, International 84084, Italy; maf2010@unisa.it.

This symposium will include four mini-courses on April 16 and several invited sessions on the theme “Statistics in the Sciences.” Keynote speakers are Iain Johnstone and Jennifer Chayes. Students are encouraged to submit papers for the best student paper competition by March 1. Several options for sponsorship opportunities are available. For details, visit www.stat.harvard.edu or contact Dale Rinkel, 1 Oxford St., Cambridge, MA 02138; (617) 495-5496; symposia@stat.harvard.edu.

25–27—22nd Annual Kansas State University Conference on Applied Statistics in Agriculture, Manhattan, Kansas
This conference will bring together statisticians from academia, industry, and government to discuss ideas and advances in the application of statistics to solve agricultural research problems. A keynote speaker, workshop, and series of contributed papers and poster presentations will be included. For more information, visit www.ksu.edu/stats/agstat.conference or contact John Boyer, Department of Statistics, Dickens Hall, Kansas State University, Manhattan, KS 66506; (785) 532-0518; jboyer@ksu.edu.

29–5/1—2010 SIAM International Conference on Data Mining, Columbus, Ohio
This conference will provide a venue for researchers to present their work in a peer-reviewed forum. It also provides an ideal setting for graduate students and others new to the field to learn about cutting-edge research by hearing outstanding invited speakers and attending tutorials (included with conference registration). A set of focused workshops also will be held on the last day of the conference. The proceedings of the conference will be published in archival form and made available on the SIAM web site. For more information, visit www.siam.org/meetings/sdm10 or contact Steven MacEachern, Department of Statistics, The Ohio State University, 1958 Neil Ave., Cockins Hall, Rm. 404, Columbus, OH 43210-1247; (614) 292-5843; sdm@siam.org.

May

1—Workshop on Link Analysis in Adversarial Data Mining, Columbus, Ohio
Papers are being accepted for this workshop, which will be held with the 2010 SIAM Data Mining Conference. Submissions should be sent via email to abadia@louisville.edu. See www.siam.org/meetings/sdm10/sdm10/submissions.php for submission details. For more information about the workshop, visit date.cecsresearch.org/workshop.htm or contact Antonio Badia, J.B. Speed 112 CECS Department, Louisville, KY 40292; (502) 852-0478; abadia@louisville.edu.

19–22—Conference on Nonparametric Statistics and Statistical Learning, Columbus, Ohio
This conference will bring together researchers in nonparametrics and statistical learning from academia, industry, and government in an atmosphere focused on the development of both statistical theory and methods. The areas are broadly defined, with nonparametrics encompassing distribution-free statistics, rank-based and robust statistics, Bayesian nonparametric methods, permutation-based methods, nonparametric regression, and density estimation. Statistical learning includes a range of methods focused on the general goals of discovery, classification, and prediction. Six prominent researchers will present plenary talks relating to both fields. There also will be eight contributed paper sessions and two contributed poster sessions where junior investigators and graduate students are expected to participate. For more information, visit www.stat.osu.edu/~nps2010 or contact Steven MacEachern, Department of Statistics, The Ohio State University, 1958 Neil Ave., Cockins Hall, Rm. 404, Columbus, OH 43210-1247; (614) 292-5843; snm@stat.osu.edu.

20–22—Statistical Analysis of Neural Data (SAND5), Pittsburgh, Pennsylvania
This workshop series is concerned with analysis methods for neural signals from sources such as EEG, fMRI, MEG, 2-Photon, and extra-cellular recordings. It aims to define important problems in neuronal data analysis and useful strategies for attacking them, foster communication between experimental neuroscientists and those trained in statistical and computational methods, and encourage young researchers to present their work and interact with senior colleagues. Travel funds are expected to be available. Anyone interested in presenting their work as a talk should submit an abstract by February 28. In addition, all participants are encouraged to present posters. For details, visit sand.stat.cmu.edu or contact Rob Kass, Department of Statistics, Carnegie Mellon
23–26—38th Annual Meeting of the Statistical Society of Canada, Québec, City, Québec
This conference will bring together academic, government, and industrial researchers as well as users of statistics and probability. Featured will be workshops and invited and contributed sessions on all areas of statistics and probability. About 450 statisticians are expected to participate. For details, contact Thierry Duchesne, Université Laval, Département de mathématiques et de statistique, Pavillon Vachon, Quebec, Quebec G1K 7P4, Canada; (418) 656-2131, Ext. 5077; thierry.duchesne@mat.ulaval.ca.

24–26—33rd Annual Midwest Biopharmaceutical Statistics Workshop, Muncie, Indiana
Plenary speakers will address how the role of statistics is adapting to recent changes within the pharmaceutical industry and the impact of these changes. Invited talks will follow a similar theme and be presented in four parallel tracks: clinical, discovery/pre-clinical, nonclinical, and post-approval. Abstracts for the poster session must be submitted by April 19; students are encouraged to submit posters for the Charlie Sampson Award. The workshop will be preceded by a half-day short course. For more information, visit www.mbswonline.com or contact Melvin Munsaka, One Takeda Pkwy., Deerfield, IL 60015; (847) 582-3533; mmunsaka@tgrd.com.

This conference will promote collaboration between users who have quantitative defense and national security problems and quantitative professionals such as statisticians, mathematicians, operations researchers, and engineers. Papers are wanted on quantitative methods that can be used to solve problems in defense and national security and that describe defense and national security data analysis problems. The program will consist of invited sessions, contributed presentations, and a special poster session. For more information, visit www.galaxy.gmu.edu/QMDNS2010 or contact Jeffrey Solka, 18444 Frontage Road, Suite 324, Code Q21, Dahlgren, VA 22448; (540) 653-1982; Jeffrey.Solka@navy.mil.

25–27—Joint Research Conference on Statistics in Quality, Industry, and Technology, Gaithersburg, Maryland
The Quality and Productivity Research Conference and the Spring Research Conference on Statistics in Industry and Technology will be held jointly at the National Institute of Standards and Technology (NIST). The goal of the conference is to stimulate interdisciplinary research among statisticians, engineers, and physical scientists in quality and productivity, industrial needs, and the physical sciences. The conference will feature presentations on statistical issues and research approaches drawn from collaborative research. For more information, contact Will Guthrie, 100 Bureau Drive, Stop 8980, Gaithersburg, MD 20899-8980; (301) 975-2854; will.guthrie@nist.gov.

June

3–4—Statistical Science: Making a Difference, Madison, Wisconsin
A series of events are planned to celebrate the 50th anniversary of the founding of the department of statistics and its achievements in making a difference in statistics and the sciences through theory/methods and applications/practice. The main event will highlight major advances and emerging topics in statistical science during the last 25 years. For more information, visit www.stat.wisc.edu or contact Denise Roder, 1300 University Ave., MSC 1220, Madison, WI 53706; (608) 262-2937; 50th@stat.wisc.edu.

5–8—IWMS 2010 - 19th International Workshop on Matrices and Statistics, Shanghai, China
This conference will stimulate research and foster the interaction of researchers in the interface between statistics and matrix theory. There will be invited and contributed papers. Potential participants should visit www.iwms2010.org for online registration and submission of abstracts. For details, visit www1.shfc.edu.cn/iwms/index.asp for online registration and submission of abstracts. For details, visit www1.shfc.edu.cn/iwms/index.asp or contact Yonghui Liu, Shanghai Finance University, Shanghai, International 201209, China; IWMS2010@shfc.edu.cn.

10–12—2010 International Symposium on Financial Engineering and Risk Management (FERM2010), Taipei, Taiwan
FERM2010 will allow academic researchers and industry practitioners to exchange state-of-the-art knowledge and discoveries in financial engineering and risk management, as well as discuss the recent financial crisis, research interests, and industry trends. Keynote speakers will include Tim Bollerslev, Jay Dweck, and Harrison Hong. In addition, 15 invited sessions, 15 contributed sessions, and a poster session are planned. For more information, visit www.fin.ntu.edu.tw/~ferm2010 or contact Program Committee, Center for Research in Econometric Theory and Applications, National Taiwan University, Taipei, International 106, Taiwan; 886-2-33661072; ferm2010.prog@gmail.com.

12–19—Statistical and Machine Learning Methods in Computational Biology, Lipari, Italy
Lectures will focus on new statistical challenges posed by deep sequencing techniques to inference and analysis of network structure that take into account the scale of data available. A series of tutorials also will be offered from introductory topics to statistics to probabilistic and machine learning methods. For more information, visit lipari.cs.unict.it/LipariSchool/Bio or contact Raffaele Giancarlo, Dipartimento di Matematica, Via Archirafi 34, Palermo, International 90123, Italy; +39-091-238-91067; raffaele.math.unipa.it.

14–16—Pacific Coast Statisticians and Pharmacometricians Innovation Conference, San Luis Obispo, California
This conference will provide statisticians and pharmacometricians a forum to share pertinent information concerning the application of these disciplines to the pharmaceutical and biotechnology industries.
14–17—23rd Nordic Conference on Mathematical Statistics (NORDSTAT), Voss, Norway
NORDSTAT is a biennial meeting for statisticians and probabilists. For more information, visit www.nordstat2010.org/index.php or contact Inger Lise Ravanger, Torgalmenning 1a, Bergen, International N-5808, Norway; +47 55553655; mail@kongress.no.

16–18—45th Scientific Meeting of the Italian Statistical Society, Padua, Italy
The 2010 conference will include plenary, specialized, contributed, and poster sessions. These can be in any area of interest relevant to theoretical and applied statistics. For details, visit www.iis-statistica.it/meeting/index.php?isb2010/is2010 or contact Patrizia Picentini, Department of Statistical Sciences, via C. Battisti 241, Padova, International I-35121, Italy; segorgy@stat.unipd.it.

16–18—Sparse Structures: Statistical Theory and Practice, Bristol, United Kingdom
The aim of this workshop is to bring together theory and practice in modeling high-dimensional data to come to a better understanding of the possibilities for finding robust rigorously founded methods. Space is limited. Abstracts for contributed talks are due February 15; abstracts for posters are due March 15. Those who want to attend should email sustain-sparsity@bristol.ac.uk by March 15. All abstracts should also be emailed to sustain-sparsity@bristol.ac.uk. For more information, visit www.sustain.bris.ac.uk/us-sparsity or contact Azita Ghassemi, Department of Mathematics, Bristol, International BS8 1TW, UK.

20–23—ICSA 2010 Applied Statistics Symposium, Indianapolis, Indiana
Short sources will be offered on June 20, and approximately 50 scientific sessions will take place from June 21–23. Keynote speakers include Donald Rubin, Ji Zhang, Xihong Lin, ShaAvhrée Buckman, and Gregory Campbell. Contributed paper abstracts may be submitted to Jun Xie at juxie@stat.purdue.edu or Menggang Yu at meyu@iupui.edu by May 1. The symposium also will sponsor J-P Hsu student awards and travel grants, with the application deadline of March 15. For more information, visit www.isca.org/2010 or contact Yongming Qu, Lilly Corporation Center, Indianapolis, IN 46285; (317) 571-0764; quyoy@lilly.com.

20–23—ISF 2010 - 30th International Symposium on Forecasting, San Diego, California
This conference—attracting the world’s leading forecasting researchers, practitioners, and students—will include keynote speaker presentations, academic sessions, workshops, and social programs. For details, visit www.forecasters.org or contact Pam Stroud, 53 Tesla Ave., Medford, MA 02155; (509) 357-5530; isf@forecasters.org.

28–7/2—ICORS 2010, Prague, Czech Republic
The International Conference on Robust Statistics aims to be a forum for the development and application of robust statistical methods. It is an opportunity to meet, exchange knowledge, and build scientific contacts with others interested in the subject. For more information, visit icors2010.karlin.mff.cuni.cz or contact Jana Jureckova, Department of Statistics, Sokolovska 83, Prague 8, International CZ-186 75, Czech Republic; icors2010@karlin.mff.cuni.cz.

29–7/1—International Conference on Probability Distributions and Related Topics in Conjunction with NZSA Conference, Palmerston North, New Zealand
This international conference is devoted to all aspects of distribution theory and its applications, including discrete, univariate, and multivariate continuous distributions; copulas; extreme values; skewed distributions; conditionally specified distributions; and life distributions in engineering and survival analysis. For more information, visit http://nzsa_cell_2010.massey.ac.nz or contact Narayanaswamy Balakrishnan, Department of Mathematics and Statistics, Hamilton, International L8S 4K1, Canada; (905) 525-9140, Ext. 23420; bala@mcmaster.ca.

In addition to invited and contributed paper sessions, this conference will include a series of workshops. The deadline for bursary application (developing countries) is March 1; the deadline for early (reduced-cost) registration is March 31. For details, visit www.ncse.org.nz/isc2010 or contact Alexa Laurence, University of Kent, Canterbury, International CT2 7NZ, UK; 01227 827253; a.f.laurence@kent.ac.uk.

30–7/2—2010 International Conference of Computational Statistics and Data Engineering, London, United Kingdom
For details, visit www.iase.org/WCE2010/ICCSDE2010.html or contact IAENG Secretariat, Unit 1, 1/F, 37-39 Hung To Road, Hong Kong, International, China; (852) 3169-3427; wce@iaeng.org.

July
4–9—IWSM 2010, Glasgow, United Kingdom
The 25th International Workshop on Statistical Modeling (IWSM 2010) will be hosted by the University of Glasgow in Scotland. For more information, visit or contact Claire Ferguson, Department of Statistics, 15 University Gardens, Glasgow, International G12 8QW, Scotland; 0141 330 5023; c.ferguson@stats.gla.ac.uk.

*5–9—ISBIS-2010 (International Symposium on Business and Industrial Statistics), Slovenia
The key themes of this conference are industrial applications of statistical image analysis, future directions for handling large and complex data sets, financial services, health services, quality and productivity improvement, and decisionmaking in business and industry. For more information, visit www.action-m.com/isbis2010 or contact Milena Zeithamlova,
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6–8—LASR 2010: High-Throughput Sequencing, Proteins, and Statistics, Leeds, United Kingdom
This workshop will focus on developments at the interface of statistical methodology and bioinformatics. For more information, visit www.maths.leeds.ac.uk/lasr2010 or contact Jochen Voss, Department of Statistics, University of Leeds, Leeds, International LS2 9JT, UK; workshop@maths.leeds.ac.uk.

12–23—SAMSI: 2010 Summer Program on Semiparametric Bayesian Inference: Applications in Pharmacokinetics and Pharmacodynamics, Research Triangle Park, North Carolina
The aims of the program and workshop are to identify the critical new developments of inference methods for pharmacokinetics (PK) and pharmacodynamics (PD) data, determine open challenges, and establish inference for PK and PD as an important motivating application area of nonparametric Bayes. For more information, visit www.samsi.info/programs/2010bayes-summer-program.shtml or contact Jamie Nunnely, P.O. Box 1504, Piscataway, NJ 08855; rqd@issatconferences.org.

27–31—LinStat 2010, Tomar, Portugal
The aim of this conference is to bring together researchers sharing an interest in a variety of aspects of statistics and its applications to discuss current developments. There will be plenary talks and sessions with contributed talks, as well as a special session with talks by graduate students. For more information, visit www.linstat2010.ipt.pt or contact Francisco Carvalho, Estrada da Serra - Quinta do Contador, Tomar, International 2300-313, Portugal; +351249328100; fp.carvalho@ipt.pt.

August

5–7—16th ISSAT International Conference on Reliability and Quality in Design, Washington, DC
Calling for papers, due February 15. For details, visit www.issatconferences.org or contact Conference Secretary, P.O. Box 19 TW Alexander Drive, RTP, NC 27709; (919) 685-9350; nunnely@niss.org.

22–27—COMPSTAT 2010, Paris, France
This conference will cover the development and implementation of new statistical ideas, user experiences, and software evaluation. The program should appeal to software developers and anyone working in statistics who uses computers, whether at a university, company, government agency, or research institute. For more information, visit www.compsat2010.fr or contact Gilbert Saporta, 292 rue Saint Martin, Paris, International 75003, France; +33140272268; gilbert.saporta@cnam.fr.

29–9/1—SAMSI: 2010–11 Program on Complex Networks, Research Triangle Park, North Carolina
This program is built around network science, modeling and inference, flows on networks, network models for disease transmission, and dynamics of networks. For more information, visit www.samsi.info/workshops/index.shtml or contact Terri Nida, 19 TW Alexander Drive, RTP, NC 27709; (919) 685-9350; info@samsi.info.

September

Modern science is generating a need to understand and statistically analyze populations of increasingly complex types. Analysis of object oriented data (AOOD) is aimed at encompassing an array of such methods. For more information, visit www.samsi.info/programs/2010aoodprogram.shtml or contact Terri Nida, 19 TW Alexander Drive, RTP, NC 27709; (919) 685-9350; info@samsi.info.

13–15—ENBIS 2010 - 10th Annual Conference of the European Network for Business and Industrial Statistics, Antwerp, Belgium
This conference will include keynote lectures, invited and contributed sessions, workshops and pre- and post-conference courses. The social program will include a reception at Antwerp City Hall and dinners in the medieval cellars in downtown Antwerp and Marble Hall of the Antwerp Zoo. For more information, visit www.enbis.org or contact Peter Goos, Prinsstraat 13, Antwerp, International 2000, Belgium; +3232654059; peter.goos@ua.ac.be.
October

20–22—International Conference on Modeling, Simulation, and Control 2010, San Francisco, California
This conference is held under the World Congress on Engineering and Computer Science, organized by the International Association of Engineers. For more information, visit www.iaeng.org/WCECS2010/ICMSC2010.html or contact IAENG Secretariat, Unit 1, 1/F, 37-39 Hung To Road, Hong Kong, International HK, Hong Kong; (852) 3169-3427; wces@iaeng.org.

December

6–10—Australian Statistical Conference 2010, Fremantle, West Australia
Delegates from all areas of work in statistics will be encouraged to communicate their knowledge and expertise and join world-class Australian and international statisticians to discuss new work. The theme for the 2010 conference, “Statistics in the West: Understanding Our World,” provides opportunities for presentations on a range of topics. For more information, visit www.statsoc.org.au or contact Promaco Conventions, Unit 10 22 Parry Ave., Bateman, International 6150, Australia; +61 8 9332 2900; promaco@promaco.com.au.

2011

January

*5–7—2011 Living to 100 Symposium, Orlando, Florida
This conference, held by the Society of Actuaries, will include leaders from around the world who will share knowledge about aging, changes in survival rates and their impact on society, and observed and projected increases in aging populations. For more information, visit http://livingto100.soa.org or contact Jan Schuh, 475 N. Martingale Road, Suite 600, Schaumburg, IL 60173; jcschuh@soa.org.

5–7—Fourth International IMS/ISBA Joint Meeting, Park City, Utah
A central theme of this conference is Markov chain Monte Carlo and related methods and applications. The conference also will feature plenary speakers Jeff Rosenthal, Nicky Best, and Michael Newton and six invited sessions. Nightly poster sessions will offer substantial opportunity for informal learning and interaction. Limited financial support for junior investigators is anticipated. The meeting will be accompanied by a satellite workshop on adaptive MCMC methods, intended to provide a snapshot of the methodological, practical, and theoretical aspects of an emerging group of methods that attempt to automatically optimize their performance for a given task. For details, visit madison.byu.edu/mcmksli/index.html or contact Brad Carlin, MMC 303, Division of Biostatistics, School of Public Health, 420 Delaware St. S.E., Minneapolis, MN 55455; (612) 624-6646; brad@biostat.umn.edu.

May

10–13—International Conference on Design of Experiments (ICODOE-2011), Memphis, Tennessee
The goal of this conference is to bring together leading researchers in design and analysis of experiments, including combinatorial design, and practitioners in the pharmaceutical, chemometrics, physical, biological, medical, social, psychological, economic, engineering, and manufacturing sciences. The conference will focus on emerging areas of research in experimental design and novel innovations in traditional areas. For more information, visit www.msc.memphis.edu or contact Manohar Aggarwal, 373 Dunn Hall, University of Memphis, Memphis, TN 38152; (901) 678-3756; maggarwl@memphis.edu.

June

20–24—Seventh International Conference on Mathematical Methods in Reliability, Beijing, China
This international conference will focus on theory, methods, and applications of reliability models and associated inferential issues. For more information, visit www.mmr2011.cn or contact Lirong Cui, Beijing Institute of Technology, School of Management and Economics, Beijing, International PRC, China; 1-905-525-9140; Lirongcui@bit.edu.cn.

For more information, contact Wei Zhang, 900 Ridgebury Road, Ridgefield, CT 06877; (203) 791-6684; wei.zhang@boehringer-ingelheim.com.

30–7/3—Statistics 2011 Canada/IMST-2011-FIM XX, Montréal, Quebec
This conference is dedicated to all areas of mathematical and statistical sciences. In addition to traditional theoretical/applied areas, interdisciplinary research is encouraged. Historically, this conference has concentrated on applied and theoretical statistics, Bayesian statistics, bioinformatics, biostatistics, combinatorics, computer and information sciences, design and analysis of experiments, ergodic theory, functional analysis, graph theory, multivariate analysis, number theory, partial differential equations, and topology. For more information, contact Yogendra Chaubey, 1455 de Maisonneuve Blvd. W., Montréal, Quebec H3G 1M8, Canada; +1 514 848 2424, Ext. 3258; stat2011@mathstat.concordia.ca.

July

30–8/4—2011 Joint Statistical Meetings, Miami Beach, Florida
JSM is the largest gathering of statisticians held in North America. Attended by more than 5,000 people, activities include paper and poster presentations, panel sessions, continuing education courses, an exhibit hall, a career placement service, society and section business meetings, committee meetings, social activities, and networking opportunities. For more information, visit www.amstat.org/meetings or contact ASA Meetings, 732 North Washington Street, Alexandria, VA 22314; (888) 231-3473; meetings@amstat.org.
Professional Opportunity listings may not exceed 65 words, plus equal opportunity information. Ads must be received by the first of the preceding month to ensure appearance in the next issue (i.e., September 1 for the October issue). Ads received after the deadline will be held until the following issue.

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 web site (www.amstat.org). Vacancy listings will appear on the web site 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. A URL link may be included in display ads in the online version of *Amstat News* for an additional $100. Display advertising rates are at www.amstat.org/ads.

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

Employers are expected to acknowledge all responses resulting from publication of their ads. Personnel advertising is accepted only 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 web site at www.amstat.org/jobweb.

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**Arizona**

W. L. Gore & Associates is seeking an industrial statistician to support its medical device business in Arizona. Position involves consulting with small teams and statistical training of engineers and scientists. Candidates must have advanced degree in statistics (PhD preferred) with at least 4 years industrial experience strongly preferred. Background in basic and advanced statistical methods and expertise in DOE. Familiarity with JMP. Apply: www.gore.com/careers. EEO/AA Employer.

**Colorado**

Senior Biostatistician/Associate Director or Director of Biostatistics. A unique and exciting opportunity to work as a full-time biostatistician at the Colorado Prevention Center (CPC). CPC is an academic research organization and disease prevention center. For complete information please visit our careers page at www.cpcmed.org. CPC is an Equal Opportunity Employer.

**Florida**

One or more tenure-track faculty, all levels, in the Institute of Food and Agricultural Sciences Department of Statistics, University of Florida, are available pending support. Includes teaching, methodological and collaborative research. PhD in statistics or related field, with expertise either in statistical genetics or Bayesian inference. To apply, please go to https://jobs.ufl.edu, requisition 0803619, position #00014724. For additional information email mcxman@ufl.edu. University of Florida is an EOE.

**Massachusetts**

Outcome seeks a biostatistician to work on observational studies on the natural history of disease and comparative safety and effectiveness. You’ll work on study design, data analysis plans, analyses, and reports. This role is based in our Cambridge location. The ideal candidate will have a PhD and 3 years health care
**School of Public Health**

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Apply online at www.drexeljobs.com. Use “biostatistics” as a key word in the Search Postings area and select this position. Please complete the short on-line application and submit c.v. and cover letter describing your interest, background and qualifications.

Questions/inquiries can be addressed to:
Craig J. Newschaffer, Ph.D.
Chair, Department of Epidemiology & Biostatistics
newsch@krexel.edu

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**FACULTY SEARCH ANNOUNCEMENT**

**Assistant Professor -- Division of Biostatistics**

The Ohio State University College of Public Health invites applications for a tenure-track faculty positions in Biostatistics.

All applicants must have a PhD in Biostatistics or Statistics. All new faculty will be involved in teaching and methodological research, collaboration with OSU investigators, and mentoring of graduate students.

Candidates for the Assistant Professor position should have an interest in collaborative and methodological research and interest in and demonstrated record of teaching. Candidates for Associate Professor should have a bibliography of peer-reviewed publications, a record of funded research, and a record of excellence in teaching.

Rank and salary will be determined by the candidate’s credentials. Applications will be considered as they arrive and the date of appointment is open to negotiation. Women and other under represented groups are especially encouraged to apply.

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openings. Responsibilities include support for drug discovery projects, animal pharmacology, genomics, proteomics, imaging, and biomarker studies from basic research and clinical trials. Applicants should have a PhD in biostatistics or related disciplines, 1–10 years of experience in related applications, experience with high-dimensional data sets, and expertise in R and SAS.

Apply: http://track.jobviper.com/ViewJob.asp?id=654366-1612-8897. EOE.

- Postdoctoral fellowships are available in the department of biostatistics at the Harvard School of Public Health. Fellows will engage in methodological research and participate in ongoing collaborative projects. Please view details on specific positions at our web site: www.hsph.harvard.edu/departments/biostatistics/fellowship-opportunities. Applications from minority and female candidates are especially encouraged. Harvard University is an AA/EOE.

- MS biostatistician. Collaborate with medical and scientific researchers in design, analysis, and publication of cancer clinical trials and related research. Requirements: strong background in statistical principles, data analysis, computing (especially SAS and R), communication skills, and 1–2 years of experience. Send CV, names of three references to: MS Biostatistician Job Search, Biostatistics & Computational Biology, Dana-Farber Cancer Institute, 44 Binney Street, Boston, MA 02115; biostatistics.job-search@jimmy.harvard.edu Dana-Farber Cancer Institute is an AA/EOE.

- Memorial Sloan-Kettering Cancer Center has positions available for master’s-level biostatisticians. The successful applicant will engage in wide variety of collaborative projects w/ medical investigators and statisticians. Projects involve the design, analysis and publication of clinical, laboratory or cancer prevention research. Qualifications include excellent

## New York

- Postdoctoral fellowships are available in the department of biostatistics at the Harvard School of Public Health. Fellows will engage in methodological research and participate in ongoing collaborative projects. Please view details on specific positions at our web site: www.hsph.harvard.edu/departments/biostatistics/fellowship-opportunities. Applications from minority and female candidates are especially encouraged. Harvard University is an AA/EOE.

- MS biostatistician. Collaborate with medical and scientific researchers in design, analysis, and publication of cancer clinical trials and related research. Requirements: strong background in statistical principles, data analysis, computing (especially SAS and R), communication skills, and 1–2 years of experience. Send CV, names of three references to: MS Biostatistician Job Search, Biostatistics & Computational Biology, Dana-Farber Cancer Institute, 44 Binney Street, Boston, MA 02115; biostatistics.job-search@jimmy.harvard.edu Dana-Farber Cancer Institute is an AA/EOE.

## New York

- Memorial Sloan-Kettering Cancer Center has positions available for master’s-level biostatisticians. The successful applicant will engage in wide variety of collaborative projects w/ medical investigators and statisticians. Projects involve the design, analysis and publication of clinical, laboratory or cancer prevention research. Qualifications include excellent

## New York

- Memorial Sloan-Kettering Cancer Center has positions available for master’s-level biostatisticians. The successful applicant will engage in wide variety of collaborative projects w/ medical investigators and statisticians. Projects involve the design, analysis and publication of clinical, laboratory or cancer prevention research. Qualifications include excellent

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Biostatistics

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Qualified candidates must have a doctoral degree in biostatistics/statistics or a related field; an established record of biostatistical research; a strong record of collaboration on extramurally funded research; strong interest in scientific collaborative research and teaching; record of publishing in top tier journals; and excellent written and oral communication skills as he/she must be able and willing to work with a diverse team of scholars.

Only online applications are accepted. Candidates selected for interview will be required to submit a disclosure and consent form authorizing a background investigation. Candidates must apply online at https://academicpositions.ua.edu and include a curriculum vita and a list of three references with addresses, phone numbers and e-mails. Items not attached at time of application will disqualify application.

Applications will be reviewed beginning January 1, 2010 and will continue until the position is filled. The expected starting date of appointment is August 16, 2010. Salary is competitive. The complete advertisement may be viewed online.

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Applications will be accepted from December 15, 2009 – April 15, 2010

programming skills, proficiency in database manipulation, and good verbal and written communication skills. Please email cover letter and CV to: EPIBIOSTATS@mskcc.org. Memorial Sloan-Kettering Cancer Center is an AA/EOE.

Department of Mathematical Sciences, Binghamton University: Assistant Professor. Consideration: PhDs in probability/statistics who can provide leadership in undergraduate actuarial program. Arrange for CV, three reference letters to: Fernando Guzman, Department of Mathematical Sciences, Binghamton University, Binghamton, NY 13902-6000. fer@math.binghamton.edu. Screening begins February 1, 2010. Binghamton University is one of the four PhD-granting centers of the SUNY system. Equal opportunity/affirmative action employer.

Statistician. Seeking individual w/ PhD in statistics to join a major national study of human neurophysiology and related genetic data. Experience and knowledge of multivariate & time series analyses, research design and analysis of prospective studies helpful; familiarity with SAS and/or S+/R desirable. Salary 45K–60K. Excellent benefits. Please submit a letter of interest and CV. (PDF format please) Attn: Bernice Porjesz. Email: job1@cns.hscbklyn.edu. EOE.

North Carolina

The department of biostatistical sciences, Wake Forest University School of Medicine, Winston-Salem, is seeking biostatistician applicants. Position requires MS in biostatistics or statistics with excellent written/verbal communication skills. Experience in biomedical consulting and statistical programming preferred. Responsibilities include collaboration with medical investigators on design, conduct, analysis, and presentation of single- and multi-center research studies. Send CV and 3 letters of reference to dbsrecruit@wfubmc.edu. AA/EOE.
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**Senior Research Statistician**  
*Req #71033BR*

Effectively partner with other team members in a multidisciplinary setting on phase II-IV clinical programs, including the design of innovative clinical trials, development of statistical analysis strategies, analysis and interpretation of safety/efficacy data, and the preparation of study reports and regulatory submissions. Qualified candidates should have a degree in statistics, biostatistics, or closely related field, with 4-7 years' experience with PhD or 5-8 years' experience with MS in the pharmaceutical industry. Good communication skills are essential. SAS programming experienced preferred.

**Research Statistician I**  
*Req #70563BR*

Ensure study design and statistical methodology are appropriate for study objectives. Must have an MS degree with 4-6 years' experience or PhD with 3-5 years' experience, and competency in experimental design, descriptive and inferential statistics, biometrics and computer systems. Pharmaceutical or related industry experience with clinical trials, including interaction with regulatory agencies, especially the FDA, required.

**Associate Statistician**  
*Req #67514BR*

Effectively work with senior statistical staff on phase II-IV clinical programs, including the design of innovative clinical trials, analysis and interpretation of safety/efficacy data, and the development of statistical analysis plans, study reports and regulatory submissions. Qualified candidates should have a master's in statistics, biostatistics, or closely related field, with 0-2 years experience in the pharmaceutical industry. Good communication skills are essential. SAS programming experienced preferred.

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The department of biostatistical sciences, Wake Forest University School of Medicine in Winston-Salem, invites applications for faculty positions at all levels. A PhD in biostatistics, statistics, or a related field and excellent verbal and written communication skills are required. Duties include collaboration, statistical research, and teaching. Interested individuals should email a research interest statement, CV, and 3 letters of recommendation to dbsrecruit@wfubmc.edu. AA/EOE.

The Statistical and Applied Mathematical Sciences Institute (SAMSI), a national institute in North Carolina, seeks postdoctoral fellows for 2010–2011. Fellows are typically appointed for two years, earn a very competitive salary, and receive exceptional mentoring. See www.samsi.info for further information. Members of
under-represented groups are particularly encouraged to apply. Statistical and Applied Mathematical Sciences Institute is an AA/EOE.

Ohio

The Ohio State University statistics department invites applications for a regular clinical faculty position in biostatistics. PhD in biostatistics/statistics, and excellence in teaching. Demonstrated record of teaching and collaborative research is required. Send vitae, three letters, and graduate transcripts to: Thomas Santner, Division of Biostatistics, Ohio State University, 310 W. 10th Ave., Columbus, OH 43210. To build a diverse work force, Ohio State encourages applications from minorities, veterans, women, and individuals with disabilities. Flexible work options available. EEO/AA employer.

Lubrizol’s R&D statistical sciences department is seeking applications for a statistician with interest and skills in predictive analytics. Requirements include a master’s degree in statistics or closely related field, strong interest and skills in modeling, statistical programming, and problem solving, and good oral and written communication skills. For further information and to apply, please visit www.lubrizol.jobs and apply for the statistician position. EOE.

Pennsylvania

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

The University of Connecticut Department of Statistics at Storrs invites applications for tenure track assistant professor in Environmental/Spatial Statistics, beginning August, 2010. Responsibilities will include methodological and collaborative research in environmental and spatial statistics, teaching at both graduate and undergraduate levels, and supervision of students. Candidates are expected to hold a doctoral degree in Statistics or related fields. Equivalent foreign degrees are acceptable. The new faculty is expected to demonstrate excellence in all the above-referenced activities. Strong interpersonal and communication skill is preferred. Incumbent may be required to work at the University of Connecticut’s main campus located in Storrs, and/or the campuses at Avery Point, Hartford, Stamford, Torrington, Waterbury, and West Hartford. Salary is competitive based on experience and qualifications. Applicants must send a cover letter, curriculum vita, statements of research and teaching interests, copy of transcript, and three letters of reference in pdf files by e-mail to search@stat.uconn.edu or by regular mail to Dr. Ming-Hui Chen, Department of Statistics, University of Connecticut, 215 Glenbrook Road, U-4120, Storrs, CT 06269-4120. Inquiries should be addressed to Ming-Hui Chen, search committee chair at mhchen@stat.uconn.edu (Search #2010 220).

University of Connecticut is an affirmative action/equal opportunity employer. The University greatly values diversity among its faculty, students, and staff and strongly encourages applications from women and under-represented minorities.

The Ohio State University College of Public Health is seeking an innovative leader and scholar to chair its Division of Biostatistics. The successful candidate will provide senior leadership and vision to the Division, and in the development and application of biostatistical methods within the College of Public Health and other health sciences colleges at OSU. This position is available immediately. The candidate should have a PhD in biostatistics, statistics or equivalent, have academic credentials consistent with appointment as a professor with tenure in the College of Public Health, have a demonstrated record of administrative experience including mentoring junior faculty, and a distinguished record of teaching.

The successful candidate will have the opportunity to collaborate in research initiatives with other investigators both within and outside the College of Public Health. They will have the opportunity to utilize the full resources at OSU which houses the most comprehensive health sciences complex on a single campus in the U.S.

For additional details please visit: http://cph.osu.edu/divisions/bio/openpositions.cfm

Please send a cover letter and CV to:
Thomas J. Santner, PhD
Chair, Biostatistics Search Committee
OSU College of Public Health
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- **Research Statistician Developer – Mixed Models Specialist**
  Specific responsibilities include accelerating software development in the area of mixed models methodology, especially nonlinear mixed models as applied to pharmacokinetics, dose response studies and frailty models.

- **Research Statistician Developer – Nonlinear Models Specialist**
  Specific responsibilities include accelerating software development in the area of nonlinear statistical models by extending the range of models, improving the underlying computational methods, and providing new statistical tests and graphics.

- **Research Statistician Developer – High-Performance Analytics**
  Specific responsibilities include accelerating efforts in distributed computing and analytic components by implementing statistical methods for problems characterized by massive data sets, large numbers of parameters, or other features that require specialized algorithmic approaches, grid-enablement and multi-threading.

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MS biostatistician—consulting on biomedical research projects and performing data analysis from NIH-sponsored, multicenter, clinical trials in eye disease. Experience in team-oriented research groups, excellent communication skills, proficiency in SAS preferred. Open now, will wait for outstanding spring 2010 graduates. Send CV and names of 3 references to Maureen Maguire, PhD (maguirem@mail.med.upenn.edu) University of Pennsylvania, 3535 Market St., Suite 700, Philadelphia PA 19104-3309. University of Pennsylvania School of Medicine is an EOE/AA Employer.

Texas
The department of epidemiology and biostatistics at the School of Rural Public Health, Texas A&M Health Science Center, is seeking candidates for two open-rank, 12-month, state-funded, tenure-track faculty positions. Qualifications include a PhD or equivalent in biostatistics or statistics. See http://srph.tamhsc.edu/epidemiology-biostatistics/faculty-positions.html for more information. Send cover letter, CV, and three references to payton@srph.tamhsc.edu. Review of applications began on January 8, 2010, and will continue until position is filled. Texas A&M Health Science Center is an EEO/AA employer.

Washington
Statistical Research Associate II. Seattle Children’s Research Institute, Seattle. Job #ML103724-106412. Working with The Cystic Fibrosis Therapeutics Development Network Coordinating Center, you will provide statistical analyses and prepare written summaries and tables of results for use in project reports and scientific papers. Requires master’s in statistics, biostatistics w/ 1–2 years related experience. Please apply at www.seattlechildrens.org/jobs and select job category “research.” EOE.

Canada
British Columbia
University of British Columbia statistics department is hiring a tenure-track instructor, start date July 2010. Apply online at http://hr.ubc.ca/careers/faculty_postings.html or by email search@stat.ubc.ca. Visit www.stat.ubc.ca for more information. UBC hires on merit basis, commits to employment equity. We encourage all qualified persons to apply, particularly women, visible minorities and individuals with disabilities. Canadians and permanent residents of Canada are given priority.

International
The department of applied mathematics at National Sun Yat-sen University has openings for faculty positions to start August of 2010. Applicants should have a PhD in statistics/mathematics. For full ads of the position, visit www.math.nsysu.edu.tw. Applicants should send an application letter, CV, transcript, and three letters of recommendation to Chair, Department of Applied Mathematics, National Sun Yat-sen University, Kaohsiung 804, Taiwan. EOE.
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What are these? A frequency table, share of responses table, share chart and frequency chart showing results of categorical analysis.

What are they for? They show summarized responses and the color-coded relative proportions of responses for the two groups studied.

What can they do? In this instance, a pharmaceutical company can see adverse events from a drug’s clinical trial. Using color and length of the bars, the analysis compares the drug to the placebo. The relative length of the orange bars (dizziness) for the drug and placebo stands out. Looking at the data, you see that the drug resulted in 320 cases of dizziness while the placebo resulted in 64.

What is this? A scatterplot with nonparametric density contours and marginal distributions.

What is it for? It shows where the data is most dense, with each contour line in the curved shape enclosing 5 percent of the data.

What can it do? For example, the manufacturer of computer processors can analyze the relationship between the speed of a chip and any factor that engineers can control, such as standby current, to improve quality and profit margins. Using this scatterplot, the manufacturer can identify abnormal chips—the ones represented by points lying farthest from the curved shape—and see that reducing standby current helps increase the speed of chips.

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