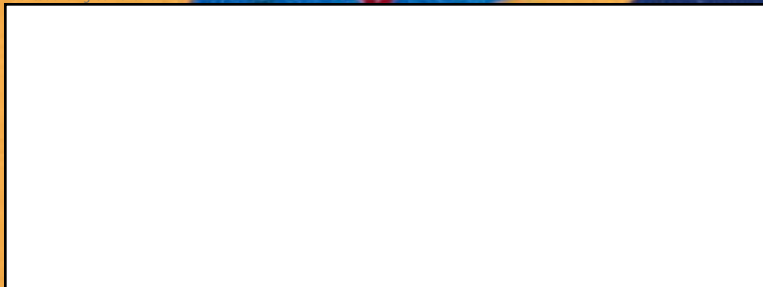# AMSTATNEWS

ASA Announces Poster, Project Competition Winners

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Promoting the Practice and Profession of Statistics

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

features

columns

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 Editors

Spiegelman

Clifford Spiegelman is a distinguished professor of statistics at Texas A&M, where he has been on the faculty for 24 years. He is also a senior research scientist at the Texas Transportation Institute. His applied research interests include chemometrics, transportation statistics, environmetrics, and statistical forensics.

Schwartz

Adina Schwartz is a professor in the department of law, police science, and criminal justice administration at John Jay College of Criminal Justice in the City University of New York. Her research interests include the scientific underpinnings of the forensic identification sciences, standards for the admission of expert testimony, and cyber-surveillance law.

Philpott

Kate Philpott holds a BS in molecular biology from The College of William and Mary, an MS in forensic science from Virginia Commonwealth University, and a JD from the University of Virginia. She has worked for the state and federal governments and the defense community in legal and scientific capacities. She is currently an independent consultant.

Online Articles

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

The program committee for the International Society for Bayesian Analysis (ISBA) conference is accepting submissions for special topic sessions until September 18. The ISBA 2012 World Meeting will take place in Kyoto, Japan, from June 25–29. For details, visit *http://magazine. amstat.org/blog/2011/07/15/isba2012*.

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

The ASA is home to several groups that reach out to members with common activities and interests who don't fit into the traditional chapter or section structures. To learn about these groups, visit *www. amstat.org/outreachgroups/index.cfm*.

Do you think the ASA's only meeting is JSM? If so, think again. The ASA sponsors meetings and workshops of interest to statisticians around the world. The ASA also serves as a central clearinghouse for statistical meetings. Find out more at *www.amstat.org/meetings*.

This column is written for statisticians with master's degrees and highlights areas of employment that will benefit statisticians at the master's level. Comments and suggestions should be sent to Keith Crank, ASA research and graduate education manager, at *keith@amstat.org*.

Contributing Editor
Shari Messinger is an associate professor of biostatistics and director of the Biostatistics Collaboration and Consulting Core at the University of Miami Miller School of Medicine. She formerly served as director of biostatistics for the University of Miami GCRC and biostatistics director for the Diabetes Research Institute.

Messinger

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

Contributing Editor
Katherine L. Monti is senior statistical scientist and director of the Massachusetts office of Rho, Inc. She also is an adjunct associate professor of biostatistics at The University of North Carolina at Chapel Hill.

Monti

departments

member news

Don't Shun the 'S' Word

As children, we learned never to use the "S" word. But the "S" word I am talking about this month is not the one our parents and teachers did not want to hear. My "S" word is "Statistics," or maybe "Statistician."

All too frequently these days, the "S" word is not used and should be. One example is the February 11, 2011, issue of *Science*, which was a special edition on data. Little reference was made to the role of statistical science in this special issue. In it, we see many articles about data—ensuring a data-rich future in the social sciences, challenges and opportunities in mining neuroscience data, the future of genomic data, signal processing and the data deluge, and visualizing data—yet the "S" word is mentioned infrequently. The introduction states, "… [T]wo themes appear repeatedly: most scientific disciplines are finding the data deluge to be extremely challenging, and tremendous opportunities can be realized if we can better organize and access the data." It is clear that Statistics and Statisticians play a huge role in making these data interpretable, yet the "S" word is notably missing.

At least one Statistician wrote a letter to the editor of *Science* complaining about this omission. Unfortunately, no letter was published. Several representatives from the ASA and AAAS Section U (Statistics) met with Alan Leshner, director of AAAS, who said candidly that Statistics had little visibility in science and we had much work to do to increase our visibility.

A completely different example is a new discipline called "business analytics." Business analytics software such as that provided by SAS, for example, promises better business decisions based on "data about customers, suppliers, operations, performance, and more." (see *www.sas.com/businessanalytics/index.html*) Business analytics promises to deliver "data analysis tools" and "predictive insights." Clearly, these insights are coming out of statistical analysis, but nowhere do we see the "S" word.

Now, it is true that the "S" word does not trip lightly on the tongue and is not particularly catchy. But, it is an identity we must strive to maintain. Perhaps we have shied away from the "S" word, ourselves, because nonstatisticians often find us intimidating. But, if the end result is that we are becoming invisible and not getting credit for our achievements in lending insight to the data explosion, we do ourselves and our discipline a great disservice. If the "S" word falls into disfavor and disuse, I fear our discipline will lose its identity and, instead of a single discipline, Statistics will become subservient to data analysis, data mining, bioinformatics, business analytics, etc.

How can we stop being invisible? We need to wear our identity as a discipline proudly, in both professional and social settings. On your job, there are plenty of opportunities to brag a little about the achievements of statistical colleagues. When a new project is discussed, be sure to point out the potential contributions Statistics could make to the project results.

In social settings, when asked what you do, be sure to use the "S" word. Even with someone whose reaction is the inappropriate "You are??" don't retreat! Explain some of the achievements of Statisticians, whether they are in medicine, social science, business, engineering, or training the next generation of Statisticians. We need to tell people that Statisticians are the ones who make sense of the data deluge occurring in science, engineering, and medicine; that Statistics provides methods for data analysis in all fields, from art history to zoology; that it is exciting to be a Statistician in the 21st century because of the many challenges brought about by the data explosion in all of these fields. Do not forget to note that Statistics is a discipline worth pursuing as a career because the need for gleaning insight from the data now being collected is only going to grow. Think up a favorite example (or two) so you will be prepared the next time someone asks you what you do for a living.

I am proud to be a Statistician, and I hope you are, too. Express your pride whenever you have the opportunity. The future of Statistics is in your hands!

Nancy L. Geller

Nancy Geller

What are the ASA's Accredited Professional Staticians™ saying?

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>
> **John Bartko**
> Biostatistician

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American Society of Agronomy Creates Statistical Section

David Meek, Chair, and Kathy Yeater, Vice Chair

With the start of 2011, the American Society of Agronomy instituted a communities/sections structure to ensure interests and activities of all members are represented, promote the integration and accommodation of multidisciplinary sciences, ensure the organizational structure has broad interest and appeal, create a fluid and flexible structure that enables the organization to accommodate emerging issues, and promote relevance to prospective members.

The newly formed Biometry and Statistical Computing Section announces the creation of three communities started with current members responding to the most recent needs of applied statistical applications in the agronomic, crops, and soil sciences (ACS).

Communities organize around topical areas and are made up of groups of American Society of Agronomy members with common professional interests. The purposes of communities are to gather members, encourage scientific exchange and sharing of information, facilitate planning, enhance communication, and provide coordination of programs and services.

Communities within the Biometry and Statistical Computing Section include the following:

Statistical Education/Training for Researchers, led by Edzard van Santen (*evsanten@acesag. auburn.edu*). ACS researchers need statistical training to take advantage of modern analysis techniques and extract the maximum benefit from experiments they conduct. This community joins researchers from these disciplines to provide statistical training for research needs and advancement. Specific plans for the 2011 annual meeting in San Antonio, Texas, to take place October 16–19, include the workshop "Walk, Crawl, Run! Hands-On Training in Modern Data Analysis with SAS for Researchers" and a symposium, "Ways to Avoid Statistical Malpractice in Soil Research." The focus of the symposium is statistical applications in soil science, with particular emphasis on, but not limited to, soil carbon.

Bioinformatics in Crops and Soils, led by Clare Coyne (*clarice.coyne@ars.usda.gov*). This community addresses bioinformatics training and software education across the ACS disciplines generating genomic information. For the 2011 annual meeting, they will present a symposium titled "Bioinformatics for Crop Improvement: Assay Design and Applications." It will cover basic plant bioinformatics tools and innovations in gene/positive allele and SNP selection and application in plant breeding.

Spatial Statistics Applications, led by Jose Hernandez (*jahernan@umn.edu*). ACS researchers often deal with spatial variability in their experimental fields. Spatial statistics facilitate the development of models to estimate the influence of spatial dependence and provide a powerful tool for estimation of treatment effects, correlation structure, prediction of unobserved data, and the design of experiments. The goal of this community is to provide a venue to discuss current spatial statistical applications in agricultural sciences. For the 2011 annual meeting, the community is cosponsoring a symposium titled "Spatial Predictions in Soils, Crops, and Agro/Forest/Urban/Wetland Ecosystems."

Persons interested in contributing to this professional society are encouraged to visit *www.agronomy. org* for more information. ∎

Member Spotlights

The managing editor of *Amstat News* is searching for ASA members who are willing to put themselves in the spotlight and write a brief article about their life, to be published in an upcoming issue.

The article should be 600 or fewer words and contain professional and personal information. Please include a photo of yourself and email it to *Amstat News* Managing Editor Megan Murphy at *megan@amstat.org*.

June *JASA* Addresses Topics from Malaria Modeling to Outlier Detection

The June issue of the *Journal of the American Statistical Association* covers application topics ranging from models of the term structure of interest rates to an analysis of the key factors in malaria epidemics. Theory and Methods contributions include novel approaches to the traditional problems of small-area estimation and outlier detection. There is also a review article on making and evaluating forecasts.

Applications and Case Studies

Malaria is a mosquito-borne infectious disease widespread in tropical and subtropical areas of the globe, with hundreds of millions of cases per year that result in more than 1 million deaths per year. The disease was eliminated in North America and Europe during the first half of the 20th century, but remains a problem in large parts of Africa and Asia. In India, there are more than 2 million cases per year. There are new efforts under way to eradicate malaria across the globe; these require an understanding of the roles of environmental factors, immunity, and disease transmission dynamics in malaria epidemics.

In "Malaria in Northwest India: Data Analysis via Partially Observed Stochastic Differential Equation Models Driven by Levy Noise," authors **Anindya Bhadra**, **Edward L. Ionides**, **Karina Ianeri**, **Mercedes Pascual**, **Menno Bouma**, and **Ramesh Dhiman**

develop a stochastic model used to study the role of different factors in malaria epidemics. The authors begin with a system of stochastic differential equations describing the inter-relationships and transitions among five classes of susceptible (fully and partially), exposed, and infected (symptomatic and mild) individuals. Then, a measurement model relates the dynamic process model to the observed data, a time series of counts of new cases. Inference for model parameters is obtained via a likelihood-based approach that relies on numerical solutions for the sample paths of the underlying process model (a so-called "plug-and-play approach"). The resulting analysis provides clear evidence of a role for rainfall variability in malaria dynamics and the usefulness of rainfall as a predictor in malaria forecasts.

A different application paper concerns the persistent methodological problem of obtaining truthful answers to sensitive survey questions. Randomized response was an early approach and has been used often. An alternative method that has attracted attention recently is the item count technique. In this approach, survey respondents are randomly assigned to treatment and control groups. Each receives a list of items and is asked only for the count of the number of items with which they agree. The treatment group includes one extra item corresponding to the sensitive information desired.

Kosuke Imai in "Statistical Inference for the Item Count Technique" introduces new inference approaches that allow multivariate analyses (e.g., regression) for data collected with the item count technique. This allows investigators to move beyond just estimating the population proportion answering in a particular way to finding the characteristics associated with different responses. The approach is applied to a question from a 1991 National Race and Politics survey concerning racial hatred in the United States in which it is found that southern whites

Symposium on Statistics in Psychiatry Honors Ten Have

Samiran Ghosh, Weill Cornell Medical College

Courtesy of UPENN

Thomas R. Ten Have

Nearly 60 participants attended the 13th Symposium on Statistics in Psychiatry, hosted by the division of biostatistics in psychiatry at Columbia University and New York State Psychiatric Institute on May 2. This is an annual one-day event that brings together academic statisticians involved in collaborative and methodological research and psychiatric researchers to address statistical challenges arising from the design and analysis of psychiatric data.

This year's symposium was marked by the sudden demise of colleague Thomas R. Ten Have of the University of Pennsylvania (UPENN). Ten Have was a founding member of the conference and an active member of the program committee, despite his poor health. The symposium was his vision of a place for statisticians who work in psychiatry to bring technical questions often posed by mental health research.

The day started with a brief note in memory of Ten Have by Eva Petkova of New York University (NYU). Colleagues from various institutions also shared their memories. Two keynote presentations, three technical talks, and several poster presentations followed.

Xiao-Li Meng from Harvard University presented the first keynote, titled "Mental Exercises for a Mental Health Study: Is This a Simpson's Paradox?" Meng provided more than one example in which such a paradox exists in published medical literature and its possible solution.

Lassell Lu of NYU, Knashawn H. Morales of UPENN, and Yongtao Guan of Yale University presented technical talks, with topics ranging from variable selection, multilevel models to measurement error model applicable toward data analytic problems related to psychiatry.

Six posters were presented during lunch and coffee breaks, and the technical program concluded with the second keynote presentation by Andrew C. Leon of Weill Cornell Medical College (WCMC), titled "Evolution of Psychopharmacology Trial Design and Analysis: Six Decades in the Making." Leon presented a sequential history of the clinical trial and some of the major events that guided the path of psychopharmacology to the present.

Finally, in honor of Ten Have, members of the program committee unanimously voted to rename the conference the "Thomas R. Ten Have Symposium on Statistics in Psychiatry." The conference goes back to 1999, with the first one held at the New York State Psychiatric Institute as an informal joint forum with participating statisticians from Columbia University and UPENN. Since then, Yale University, NYU, and WCMC have joined.

are more likely to be angered by a black family moving next door than non-southern whites, even after adjusting for a number of demographic variables.

Theory and Methods

Small-area estimation—the practice of estimating rates or means for a large number of small geographic areas—is a big statistical problem. **Jiming Jiang**, **Thuan Nguyen**, and **J. Sunil Rao** tackle this problem in "Best Predictive Small-Area Estimation" via an innovative method that combines two modeling approaches.

The authors consider prediction of the fixed parameters in two popular small-area models— the Fay-Herriot model and the nested-error regression model— deriving the so-called best predictive estimator (BPE) of the fixed parameters for each model. The BPEs are used to define a new procedure called observed best prediction (OBP) that is argued to be superior to empirical best linear unbiased prediction (EBLUP) using theoretical derivations and empirical studies.

The performance of observed best prediction is shown to be comparable to that of empirical best linear unbiased prediction when the model is correctly specified and the number of small areas is large. The advantage of the new approach is that OBP outperforms EBLUP when the underlying model is mis-specified. The authors provide theory for observed best prediction and illustrate their approach with data on kidney transplant graft failure rates from 23 hospitals.

It is unlikely these days that the acronym "IPOD" conjures up the phrase "iterative procedure for outlier detection." However, that is the name given by **Yiyuan She** and **Art Owen** to the penalty-based outlier detection method studied in "Outlier

Detection Using Nonconvex Penalized Regression."

Take a regression model Y = XB + E; add a mean-shift parameter for each observation; and fit the resulting highly over-parameterized model using a hard-thresholding, penalty-based regression method. What you get is the authors' Θ-IPOD procedure (iterative procedure for outlier detection based on a thresholding rule Θ). The method has one tuning parameter to be selected that handles both the tasks of outlier identification and regression coefficient estimation. In effect, the method performs variable selection on the combined model regression coefficient vector and mean-shift parameters vector, thus identifying a model that is robust to outliers.

Θ-IPOD methodology extends to high-dimensional modeling with $p \gg n$, provided both the coefficient vector is sparse and outliers are rare. While the method gives impressive performance in Monte Carlo studies and proves itself worthy on a number of well-studied real data sets, the authors caution that their method, like others to which they compare, depends on having a preliminary robust fit. Although the Θ-IPOD iterations are shown to be very fast ($O(np)$ at most compared to $O(np^2)$ for standard competing algorithms), the speed of obtaining the preliminary robust fit in $n+p$ dimensions is a limiting factor.

Review

The June issue also includes a Review article on forecasting. Ideally, forecasts ought to be probabilistic, taking the form of probability distributions over future quantities or events. However, many situations still require single-valued point forecasts. **Tilmann Gneiting**, in "Making and Evaluating Point Forecasts,"

discusses approaches for comparing and assessing point forecasts. The article introduces scoring functions and develops the ideas of consistency and elicitability for such functions. After a series of examples, the article closes by arguing for a change in current point forecasting practice, so that either a scoring function is specified *ex ante* or an elicitable target function is named.

The Review section also includes the usual slate of informative book reviews. The full list of articles and a list of the books under review can be viewed at *http://pubs.amstat.org/loi/jasa*. ASA members can access *JASA* online for free by logging in through the Members Only link at *www.amstat.org* and clicking "My Publications." ∎

Statisticians Needed to Discuss Next-Generation Sequencing Data Analysis

The University of Alabama at Birmingham's Section on Statistical Genetics is pleased to announce its conference on statistical analyses for next-generation sequencing, to take place September 26–27 in Birmingham, Alabama.

Next-generation sequencing technology is affecting almost all aspects of biomedical research. This technology generates an unprecedented wealth of data that demands novel analysis strategies. While information technology infrastructure and bioinformatics developments are required to enable sound information extraction, sophisticated statistical methodologies and algorithms are also essential for interpreting the data.

The aim of this two-day conference is to bring together statisticians, genetic epidemiologists, bioinformaticians, and genome biologists to discuss the statistical challenges and opportunities in next-generation sequencing data analysis. The conference will provide a venue for exchanging cutting-edge information and ideas and fostering collaboration among methodologists, analysts, and biomedical investigators.

Topics to be discussed include the following:

- New advances in the application of next-generation sequencing technology
- RNA-seq and miRNA-seq data analyses
- ChIP-seq, methyl-seq data analyses, and integration with other high-dimension data types
- Next-generation sequencing for de novo sequencing and resequencing
- Incorporating next-generation sequencing data into the genetics study of complex disease
- Rare variant association analyses and next-generation sequencing
- SNP and structure variation analysis using next-generation sequencing
- Haplotype analysis with sequencing data

Attendance is limited, so register early. Women, members of under-represented minority groups, and individuals with disabilities are encouraged to apply. For details or to register, see *www.soph.uab.edu/ssg/courses/nhgri_r13/ngsstat*.

Stochastic Search Model Featured in August Issue

Hugh A. Chipman, *Technometrics* Editor

Foldover is a widely used procedure for selecting follow-up experimental runs. Foldover designs can, however, be inefficient, requiring twice as many runs as the initial design.

Screening experiments based on nonregular designs present both promise and peril. Their complex aliasing structure opens a plethora of possible subsets of important effects, while at the same time providing scant information for discriminating between subsets. In the paper "Simulated Annealing Model Search for Subset Selection in Screening Experiments," **Mark A. Wolters** and **Derek Bingham** invent an effective algorithm for the regression model selection problem having a large number of predictors and only a few trials. The problem is further compounded by the desire to identify possibly active interactions, while obeying "heredity" constraints, such as the inclusion of a two-factor interaction requiring the inclusion of two corresponding main effects.

Common subset selection methods do not perform well in this setting. The method uses an intentionally nonconvergent stochastic search to generate a large set of well-fitting models, each with the same number of variables. Model selection is then viewed as a feature extraction problem from this set. An easy-to-use graphical method, involving plots such as the above to detect interactions and sift through promising subsets, is proposed, along with an automatic approach to determine the best models. This paper will be presented in the *Technometrics* session at the Fall Technical Conference in October.

Although regression problems typically focus on the estimation of a response function, we are sometimes more interested in its derivative. **Richard Charnigo**, **Benjamin Hall**, and **Cidambi Srinivasan** tackle this problem in their paper, "A Generalized Cp Criterion for Derivative Estimation," which focuses on effective selection of a tuning parameter in nonparametric regression. The paper provides both empirical support for the new GCp criterion through simulation studies and theoretical justification in the form of an asymptotic efficiency result. A motivating practical application in analytic chemistry illustrates the approach and demonstrates the capabilities of the selection criterion.

Gaussian process models have become a ubiquitous approach to approximating deterministic computer experiments, but they can have problems with computational complexity and numerical instability. In the paper "Regression-Based Inverse Distance Weighting with Applications to Computer Experiments," **V. Roshan Joseph** and **Lulu Kang** challenge the dominance of Gaussian processes. They demonstrate that by combining inverse distance weighting with linear regression, a simple, flexible, computationally efficient, and accurate method for multivariate interpolation is obtained. The method works well in high dimensions and with large data sets. This paper was presented in the *Technometrics* session at JSM this month.

In "A Simple Approach to Emulation for Computer Models with Qualitative and Quantitative Factors," **Qiang Zhou**, **Peter Z. G. Qian**, and **Shiyu Zhou** propose a flexible, yet computationally efficient, approach for building Gaussian process models for computer experiments with mixed input types. By using a novel hypersphere parameterization to model the correlations of the qualitative factors, the paper eliminates constraints from associated optimization problems. Several examples illustrate the effectiveness and computational efficiency of the proposed approach.

Foldover is a widely used procedure for selecting follow-up experimental runs. Foldover designs can,
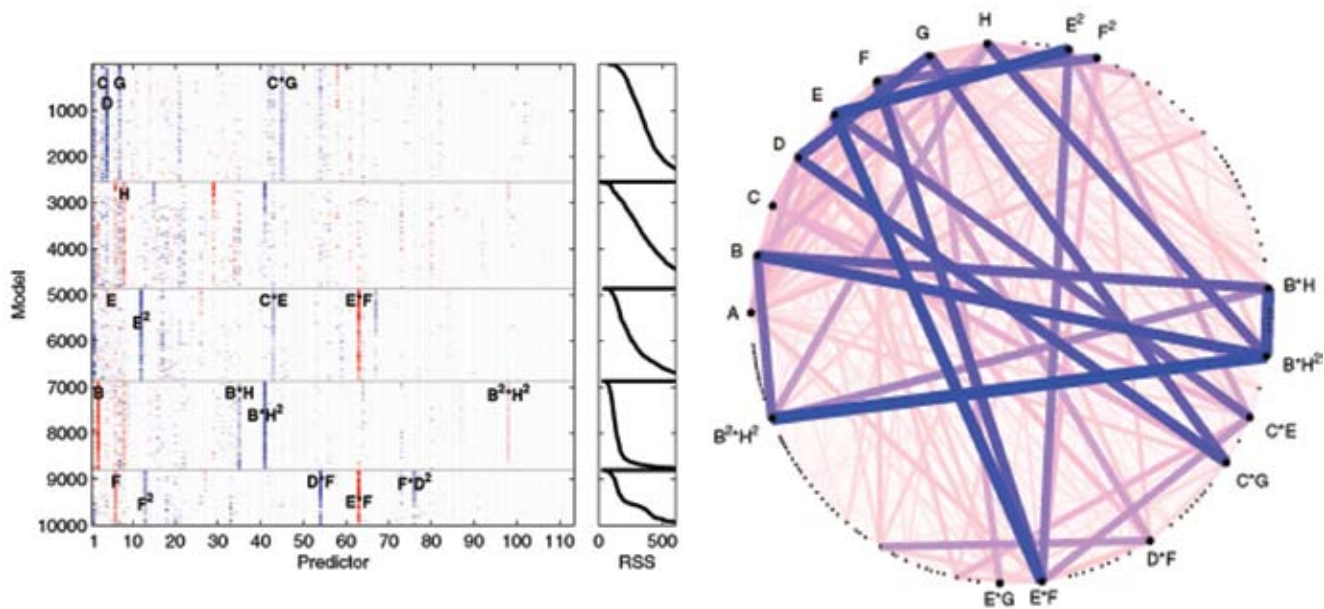
Simultaneous display of coefficients (columns) in 10,000 models (rows). Darkness indicates coefficient size, and zero coefficients are white. Color indicates coefficient sign. Right: link plot, with bold lines indicating co-occurrence of pairs of variables in good models.

however, be inefficient, requiring twice as many runs as the initial design. Semifolding, in which half a foldover fraction is added, is investigated in "Optimal Semifoldover Plans for Two-Level Orthogonal Designs," by **David J. Edwards**. The paper develops optimal plans for two-level orthogonal factorial designs (regular and nonregular) and makes comparisons based on the concept of minimal dependent sets. A hidden projection property of optimal semifoldovers of 12- and 20-run orthogonal arrays is uncovered.

The explosion of sparse regularization methods in regression is having significant effects in other statistical problems. The next two papers both explore sparse methods in the context of multivariate statistical process control, especially with complex data structures such as profile and multistage process monitoring. First, **Giovanna Capizzi** and **Guido Masarotto** demonstrate convincingly in the paper "A Least-Angle Regression Control Chart for Multidimensional Data" that out-of-control conditions can be detected with superior efficiency when

a limited subset of variables is considered. The second paper, "A LASSO-Based Diagnostic Framework for Multivariate Statistical Process Control" by **Changliang Zou**, **Wei Jiang**, and **Fugee Tsung**, focuses on accurate fault diagnosis of responsible factors. Such diagnosis has become increasingly critical in a variety of applications that involve rich process data. The LASSO algorithm allows quick computation of the diagnostic result, comparable with a least-squares regression.

The issue closes with "Spatially Varying Autoregressive Processes" by **Aline A. Nobre**, **Bruno Sansó**, and **Alexandra M. Schmidt**. This paper considers models for processes exhibiting correlation in both time and space, based on autoregressive processes at each location. Through the analysis of satellite data on sea surface temperature for the North Pacific, the paper illustrates how the model can be used to separate trends, cycles, and short-term variability for high-frequency environmental data. ■

Meet BEA Director Steve Landefeld

Amstat News *invited Bureau of Economic Analysis Director J. Steven Landefeld to respond to the following questions so readers could learn more about him and the agency he directs. Look for future statistical agency head interviews in forthcoming issues.*

J. Steven Landefeld has served in a number of capacities at the Bureau of Economic Analysis, including deputy director and associate director for international economics. He also has received national and international awards for his work, including the president's Distinguished Executive Award. He holds a PhD in economics from the University of Maryland.

What have you enjoyed most about being head of BEA?

As someone who was previously a big user of economic statistics for a number of years, I really enjoy being part of an agency that produces the data that plays such an important role in helping inform our country's economic policy. It's gratifying to be part of an organization that provides essential insight into the functioning of the country's economy and that is relied on by so many decisionmakers in both the public and private sectors. We get to come to work every day knowing that what we do matters and that government and corporate officials use BEA statistics to help them determine the best course of action for sound fiscal and monetary policies.

It's also great to get to work every day alongside the kind of talented, dedicated, and committed people we have here at BEA. Just to brag about this extraordinary group of people for a moment, we recently received the results of the latest Organizational Assessment Survey (OAS), conducted by the Office of Personnel Management. BEA set the benchmark high scores in 10 of the 12 dimensions used to measure federal agencies. In fact, we even exceeded 11 of the 15 benchmark scores used to evaluate private industries. I couldn't be more proud of the people at BEA.

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

Keeping pace with a constantly evolving economy. As the complexity of the world grows, the challenges to produce statistics that help explain it also grow. As commerce changes and becomes more sophisticated, it's absolutely vital that we improve our current measurement systems and introduce new ones to ensure the data we produce remains relevant to the cause of providing a clear picture of what is happening economically, thus helping American businesses grow and remain competitive and the nation to prosper.

This past year marked the 75th anniversary of the National Accounts. Throughout that time, this agency and its predecessors found ways to meet the changing statistical needs of the nation. The first set of national income statistics was developed at the Department of Commerce by the Nobel Prize winner Simon Kuznets in response to the big information gap revealed by the Great Depression. Over the many years I've been associated with BEA, we've implemented so many innovations it's hard to keep track. Some of the big ones that come to mind are changing the treatment of software as an investment, incorporating measures of high-tech products and banking output, and introducing major methodological changes such as chain indexes. Yet, we'll

always have to propose new measures to better understand business cycles, the sources of income growth, and the sustainability of trends.

Describe your top two or three priorities for BEA.

One of the things I'm very interested in doing is trying to expand our measurements to be able to better describe how the economy relates to the experiences of everyday people. For example, we are currently working on a health care account that will more accurately measure spending on health care. We also are proposing a suite of new measures. These will include the distribution of income, spending, debt, saving, and wealth. They also will include measures of discretionary income and inflation-adjusted measures of state personal income that reflect differences in the cost of living across states. We believe this will help the public better relate economic data to their personal experiences. It also will shed more light on problems like the housing and financial crises. We think these measures could have identified how the use of aggregate data disguised rapidly increasing risks in specific sectors and have been useful in designing policies to maintain and accelerate growth.

We also are developing expanded statistics on the energy sector that will provide more comprehensive, accurate, and better-integrated data on the

supply, consumption, and prices of energy-related products in the United States. We're working with the Energy Information Administration to introduce critical new statistics on the energy sector, which will enable us to assess its impact on U.S. economic growth and productivity. In addition, we continue our efforts to better gauge the effect of innovation on the economy through our research and development satellite account.

What do you see as the role for the broader statistical community in supporting BEA?

We rely heavily on all the other statistical agencies. The source for almost all of our data originates somewhere else. As far as I'm concerned, the health of all the other statistical agencies is critical, because we can't do our job without them. In this era of shrinking resources, I think all of us must support each other and think in terms of doing what's necessary to identify priorities and strengthen the entire statistical system. The synchronization proposal for economic data on the Hill right now is critical for innovations in making statistics more accurate and consistent and allowing us to continue to make improvements in a resource-constrained environment. I know the ASA is at the forefront of championing the data synchronization cause, and I certainly encourage the entire statistical community to support it.

What do you see as the biggest accomplishment of BEA during your tenure?

I'm really proud of the fact that the work to improve and update BEA's accounts has been a

cooperative partnership with our user groups. The input and feedback we get from the academic and business communities (e.g., ASA, National Association for Business Economics, American Economic Association, and Council of Professional Associations on Federal Statistics) has been invaluable in guiding us to produce higher-quality, more useful statistics. In my day-to-day interaction with the user community, it's obvious that individuals support our mission of providing the most timely and accurate statistics possible and are more than willing to show that support by working

with us in mapping out new initiatives and talking to policymakers about the importance to the nation of reliable statistics. It's vitally important that BEA work hand-in-hand with our customers. ∎

Sharon Hessney:
From Wall Street to Capitol Hill

ASA member and educator shares her insight on the future of statistics education

Jessie Biele

When you hear ASA member Sharon Hessney talk about her career teaching statistics to underprivileged high-school students, you can hear her enthusiasm for teaching in her voice.

Years ago, Hessney left a career on Wall Street to teach math to high-school students in Boston. Since she began teaching statistics 14 years ago, she has become a tireless advocate for the advancement of statistics education, which she thinks is regressing to a method of teaching by the test.

"The education pendulum was swinging from teaching skills-based math to teaching inquiry-based math. I learned how to educate deep analytical thinkers," said Hessney. "Now, the pendulum is swinging back to skills-based math, which can be measured on standardized tests. This is not what students need to excel in the 21st century."

Earlier this year, Hessney was selected for the Albert Einstein Distinguished Educator Fellowship Program. Sponsored by the U.S. Department of Energy, the program gives educators the opportunity to bring their insights from the classroom to Congress by working in national policy organizations. In September, she will join 28 math, science, engineering, and technology teachers to participate in the 11-month fellowship.

Hessney will participate in the Capitol Hill Fellowship. Even though she doesn't know where she will be appointed, she would like to assist public officials in analyzing data pertaining to issues that are important to their constituents. "I have no idea what I really will be doing," said Hessney. "But you better believe the analytical and statistical perspective will be applied to whatever I do."

This is not Hessney's first trip to the nation's capital. In 2009, Hessney received the Presidential Award for Excellence in Math and Science Teaching, an honor given to few math teachers across the nation. Hessney and another teacher from Massachusetts were recognized at the White House.

Wall Street Beginnings

Hessney began a career in real estate management after graduating from The Wharton School at Penn State in 1978 with her MBA in finance. She served as the vice president of Goldman Sachs Realty and later managed a real estate consulting practice. She decided to embark on a teaching career after working at Minneapolis Public Schools as a facilities advisor during the early 1990s, and earned her master's in education from Harvard's Graduate School of Education in 1997.

What exactly made her want to switch careers? She realized that although many of the workers she was hiring—and firing—could follow directions, they lacked critical thinking skills. "No one is going to get paid to calculate standard deviations by hand or even by computer," explained Hessney. "But they could be asked to compare data."

Teaching Statistics Outside the Box

Hessney began teaching AP Statistics at John D. O'Bryant School of Mathematics and Science in Roxbury, Massachusetts, in 2007, after teaching at suburban high schools for a decade. The O'Bryant is a magnet school within the Boston Public Schools system. Many of its students come from underprivileged backgrounds; these students would not have an opportunity to excel in math and science without the guidance of teachers like Hessney.

According to Hessney, the "best" students do not typically take AP Statistics because their guidance counselors have a tendency to steer them toward AP Calculus. Hessney actively recruits students whose combined SAT scores are less than 1,000 and who

are not on the College Board's AP-ready list, giving them the chance to expand their educational horizons. She has high expectations for her students, encouraging them to work hard and immerse themselves in research in and out of the classroom.

During the school year, Hessney keeps her students on their toes with classroom assignments. Students make presentations following the Geog Polya format of "What do you know? What do you want to find out? Solve it! Check that your answer is reasonable." Hessney discusses with her students surveys and experiments in the news on a daily basis. She grants extra credit to students who attend meetings of the Boston Chapter of the ASA. Each year, Hessney and her cohorts at the Boston Chapter organize a careers in statistics meeting for students in the Boston Public Schools system. Most of her students attend.

The students' hard work pays off. In 2010, 12 of Hessney's students scored a 3 on the AP Statistics exam, four students scored a 4, and three students scored a 5.

What is the secret to Hessney's success? She allows her students to work, pro bono, on real-life projects. Each year since 2009, Hessney has had her students work as a group, analyzing real statistics pertaining to subjects that interest them.

"It has been really important to me that my students get to see statistics in real situations that affect them," explained Hessney. "So you can do the little problems in class … that's okay, but not that interesting. Every year, I have found a project that needs statistical analysis that my students have done pro bono."

A few years ago, Boston Public Schools and the Boston Transit Police Authority teamed up to collect data about truancy rates. Undercover policemen, community workers, and truancy officers would go to random T (subway) stops on a daily basis and ask truant students questions about why they were truant. They also would collect demographic information. The project, called Operation Stopwatch, was supposed to give police and truancy officers a barometer for curbing truancy rates. However, the data were left untouched for three years. That is, until Hessney got her hands on it.

"They had this data in an Excel spreadsheet in the worst, dirtiest form you can imagine, and they'd never looked at it," said Hessney. "So I saw this on TV, [a reporter] interviewed the lieutenant detective who was in charge, and I emailed him and I said, 'How would you like us to analyze this data for you?'"

The lieutenant detective agreed to release the data to Hessney, who rallied her students to analyze and summarize the data. At the conclusion of the

Sharon Hessney works with two of her students from the John D. O'Bryant School of Math & Science.

project, Hessney invited the police, school officials, and the transit authority to the classroom to hear her students present their findings. She called it a "proud occasion."

"There were more guns in that room than I'll ever want to see," recalled Hessney with a laugh. "And it was cool because the police were really interested." She continued, "To be able to actually do something that affects your community, that's real."

Statistics for All

Statistics isn't just an AP course for high-school students, according to Hessney, who wants to see more statistics education for students who are not in the Advanced Placement program.

"[My goal is] to get real statistics in non-AP classes. For this, we need curriculum and teacher training," said Hessney. "Also, [I'd like] to have students come into contact with statistics in the news, understand it in context, and analyze it themselves."

Hessney encourages those who are interested in a career teaching statistics to use data that will keep their students engaged and interested. "I always use real data," Hessney stressed. "And try as much as you can to make data that the kids are going to be interested in. With statistics, it's always bringing it back to something that relates to them." ■

Join the Conversation

It is now easier than ever to become engaged in the ASA and its members through social media.

ASA Community—Join this online setting for ASA members to communicate, collaborate, and share.

Twitter—Follow *Amstat News* on Twitter @AmstatNews and keep up to date on the profession.

Facebook—Check out the ASA's page on Facebook to keep up with the latest deadlines, news, and activities and to share your tips and comments with colleagues worldwide.

Engage your fellow statisticians and enhance your mind, education, and career at *www.amstat.org*.

SCIENCE POLICY

This month's guest columnists address the critical issue of forensic science reform. With legislation yet to gain momentum on Capitol Hill, but the need for reform as imperative as ever, the authors provide practical first steps that would need leadership from the administration and encouragement from Congress, but not stand-alone legislation.

~ Steve Pierson, ASA Director of Science Policy

Putting the Science in Forensic Science
Helping Congress and the administration do what is possible

Cliff Spiegelman, Adina Schwartz, and Katherine Philpott

In 2009, a report from a committee of the National Research Council of the National Academy of Sciences found that "no forensic method other than nuclear DNA analysis has been rigorously shown to have the capacity to consistently and with a high degree of certainty support conclusions about 'individualization' (more commonly known as 'matching' of an unknown item of evidence to a specific known source)." Also in the report *Strengthening Forensic Science in the United States: A Path Forward* (the "NRC report"), the committee found that many of the hallmarks of good science—strong statistical underpinnings, the identification of sources and rates of error, rigorous and detailed protocols, and well-documented analyses—were lacking in forensic science. These criticisms of forensic science and calls for reform— presaged by Donald Kennedy's 2003 *Science* editorial, "Forensic Science: Oxymoron?"—are not merely theoretical, as evidenced by the ever-escalating discovery of cases in which faulty forensics played a role in wrongful convictions and of scandals in forensic laboratories across the country.

The NRC report's leading recommendation for forensic science reform, which the ASA has endorsed, was for congressional creation of a national institute of forensic science (NIFS), to be independent of all existing federal agencies and, in particular, of the Department of Justice (DOJ). Unfortunately, budgetary difficulties and political realities appear to have stymied the creation of NIFS to spearhead forensic science reform—at least temporarily. Obstacles to creating a NIFS-like entity should not be a barrier, however, to undertaking forensic science reform now. Here, we propose five practical reforms that can and should be implemented.

I. Transparency

The absence of publicly available information has severely hindered assessment of the strengths and weaknesses of the practices of particular laboratories and the scientific underpinnings of forensic science disciplines. Therefore, we propose that for each forensic science discipline (e.g., fingerprint identification, firearms and toolmark identification, postmortem interval determination (time of death estimates)), all federal laboratories and all other laboratories that receive federal funds or grants or use federal databases make the following available on the Internet, free of charge:

- All studies relied on as evidence of the validity of the discipline and/or of the particular procedures that the laboratory uses to apply the discipline

- All laboratory protocols (e.g., standard operating procedures, quality assurance manuals, methods for estimating uncertainty, standards for documentation)

- Records of all proficiency testing of the laboratory's analysts over the past five years, to include completion rates on tests and reported results and scores on all test questions, as well as the texts of questions, descriptions of test designs, and procedures for administering tests

- All audit findings with regard to the laboratory's performance over the past five years (e.g., the procedures and standards employed and the decisions reached by any accrediting agency in regard to the initial or continued accreditation of the laboratory, to withdrawing or denying accreditation, or to conditioning accreditation on remedial measures)

These requirements can be met for minimal cost, as most laboratories already have an Internet presence.

II. Evaluation Research

Although the NRC report's recommendations have been endorsed by distinguished scientists, jurists, academicians, and the ASA, they have

encountered substantial resistance from forensic scientists, some of whom have claimed the report did not take proper account of their research. Therefore, we propose that Congress request the National Academy of Sciences or, alternatively, the Office of Science and Technology Policy (OSTP), through the National Science and Technology Committee, to appoint a standing committee(s) to assess the strengths and weaknesses of the validation studies, protocols, proficiency testing, and procedures and standards of accrediting agencies that will be posted on the Internet, in accord with proposal I. Because National Academies panelists volunteer their time and energies, expenses would not be large.

Further, in light of the significant design flaws that the NRC committee found in forensic studies and methodologies, we propose that the majority of the committee membership consists of scientists or experts drawn from the particular scientific and engineering disciplines in which the applied forensic science disciplines are grounded. A minority of the membership should be comprised of representatives of the forensic science disciplines and clinical and/or industrial quality control experts.

III. Identifying Research Needs

The NRC report found that the conclusions reached in most forensic disciplines (e.g., the identification of one particular person as the source of a fragmentary fingerprint or one particular firearm as the one that fired a bullet) are not scientifically justified based on the extant literature. Therefore, we propose that Congress request the National Academy of Sciences or, alternatively, the OSTP to appoint a standing committee(s) composed of a minority of forensic scientists and a majority of research scientists, with no ties to law enforcement and inclusive of a quality assurance

expert and a statistician, to identify research needed to test the claims made in each forensic science discipline. The evaluation research to be undertaken in accord with proposal II should assist in the identification of research needs. Since committee members would be volunteers, expenses would not be large.

IV. Long-Term Research

As the NRC report recognized, many of the problems with forensic science are due to the long-standing subordination of scientific needs to those of law enforcement. The funds currently within the Department of Homeland Security (DHS) and DOJ budgets for forensic science research should be tapped to the extent possible to fund such research at independent scientific agencies that are not connected to either DOJ or DHS, with sole responsibility for all decisions in regard to the use of the tapped funds to be vested in such independent scientific agencies.

Additionally, to track the requirement for federal funding of clinical trials that has led to constructive input from the statistical community and better patient outcomes for decades, forensic science research grant applications to any of the federal agencies must be required to include a statistics section that explicitly states a scientifically valid experimental design and specifies a data analysis plan. An inadequate experimental design section should automatically disqualify the proposal for funding.

V. Education

For forensic science to be adequately reformed, judges and attorneys must be equipped to understand the relevant science. Therefore, Congress will encourage all relevant federal agencies (e.g., National Institute of Justice, National Science Foundation, National Institute of Standards and Technology, National Institutes of Health, the Administrative Office of the U.S. Courts) to sponsor seminars and courses to educate judges, defense lawyers, and prosecutors to understand and critically assess the scientific underpinnings and reliability of forensic science disciplines. The majority of the faculty for each program should be researchers drawn from the particular scientific and engineering discipline(s) in which applied forensic science disciplines are grounded.

Conclusion

In recognition of budgetary difficulties and political realities, these proposals keep costs to taxpayers to a minimum. Although their enactment would not solve all problems, we believe the proposed reforms are a doable first step toward ensuring that only first-rate science—beholden only to truth and not to law enforcement or any other partisan interest—is used in the courtroom. The integrity of the American judicial system demands that Congress and the administration speedily enact these reforms. ∎

MASTER'S NOTEBOOK

Statistics in Science
No shortcuts when collaborating

Shari Messinger, Associate Professor of Biostatistics, University of Miami Miller School of Medicine

As a collaborating statistician, I am often asked by researchers to "run their data" so they can get the answers they seek corresponding to a particular investigation. What they are really requesting (usually) is that I perform data analysis to address their research questions—some of them quite vague—and that I first need to determine an appropriate analytic approach based on the nature of the investigation, study design, distributional properties of the data, and particular research objectives. Although I know this is really what they are requesting, I am not sure if they are really aware of what is involved.

I currently direct an academic biostatistical consulting core that charges an hourly rate. The following is an edited excerpt from an email I received regarding a bill sent following an analysis of two data sets:

> Attached please find the invoice #999 brought to my attention by Dr. Doe. Dr. Doe would like to have the back-up documentation of how the 6.5 hrs were calculated to process into the computer 2 data sets when Dr. Doe had provided all the information in a way that could easily be plugged into the computer using minimal time. How can (the analysis of) 2 data sets require labor for 6.5 hr? …

This illustrates a common misunderstanding as to what statistical support is and clearly expresses the belief that statistical support is merely the "labor" of plugging data into a computer

and pushing a button. Too many researchers regard statistics as a useful tool, but they think there is a single, straightforward way to address any particular question and that no sound judgment or creativity is required to achieve excellence. One may think of this like needing a Phillips screwdriver with a specific head size and going to the tool box to pick the right one. However, statistical analysis is not this way. It is the application of scientific methods—statistical methods, specifically—to the research objectives at hand. We statisticians must continually educate our subject-matter collaborators as to what statistical science really is.

Statistical science is much more than data analysis, and involves the incorporation of statistical methodology at all stages of research, requiring scientific expertise in the field of statistics. Appropriate use of

statistical methodology in data analysis means the data should be analyzed in a way that is both scientifically and statistically reasonable. The statisticians are, themselves, scientists collaborating in research, and are using their statistical expertise in determining and applying the appropriate methodology for rigorously addressing important research questions with excellence. The time invested often requires the following:

- Review of the research for basic understanding of the science

- Review of the data to understand the distributional properties of the variables collected

- Determination of the appropriate methodology to apply in analysis corresponding to the hypothesis and design of the investigation

- Programming of the analysis using appropriate statistical software (specific to the particular data set)

- Review of the analytic results

- Reporting of the results

The time invested for a particular data analysis can take hours, or it can take months. This depends on the research questions, the study design, the properties of data gathered, and the target audience that will need to understand the results.

As collaborating statisticians, it is up to us to educate the research community, making them aware that our contributions involve the incorporation of statistical science to their research. We can do this by communicating with them and explaining what goes into providing high-quality collaborative statistical science that supports outstanding research programs. We must interact with the research team as collaborators, discussing the statistical issues of all aspects of the investigation. Everyone wins when the whole team understands how to fully incorporate statistical science into the entire research process.

I replied to Dr. Doe's email by making these points, almost verbatim. His misunderstanding is common, especially for newer investigators. Thankfully, most of them take kindly to learning about statistical science and this improves their research. What we do is important; there are no shortcuts. ■

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How to Prepare for a Career in Biostatistics

Katherine L. Monti, Principal Statistical Scientist, Rho, Inc.

Considering a career in biostatistics? If you like math and biology and want to make a difference in the world, this is a good plan. Biostatistics is a rewarding career, with a lot of opportunity—and the compensation is good, too.

How does one prepare for a career in biostatistics? There is no one "right path" to becoming a biostatistician, just as there is no one career path in biostatistics. Nonetheless, here are some general suggestions that should help someone considering a degree in biostatistics, whether starting such considerations in high school, college, or later on.

High School: If you are thinking about biostatistics as a career and you are still in high school, excellent! Take as much math as you can and do your science homework. If you have the opportunity to take a technical writing class, go for it. Learn some programming along the way if you can. Check the web for undergraduate degrees in biostatistics to see if any of those programs appeal to you, and see what the requirements are. If biostatistics was not on your horizon in your teens, no worries—you have plenty of time.

Undergraduate School: If you plan on a degree in biostatistics, do you need to major in biostatistics as an undergraduate? Not at all. In fact, most of us did not. You do not even have to be an undergraduate math major, although most graduate schools will require a strong math background. So plan on three semesters of calculus, a semester of

linear algebra, and introductory probability and/or statistics as a minimum, with real analysis and advanced calculus required for some programs.

What other types of courses should you take as an undergraduate? Many graduate programs in biostatistics recommend biology, epidemiology, ecology, or other science courses. I personally wish I had taken college chemistry; it would have helped me in every job I have held since graduate school. If you have not yet done so, it would be useful to learn a programming language or statistical package. I had one colleague who swore a course in logic was an invaluable aid to him, but I imagine few statisticians have taken logic in college.

By all means, work on your communication skills, written and oral. I had no idea how much writing a math-major-turned-biostatistician would need to do on the job. Learn to write. Also, work on your spoken English in several ways: grammar, "understandability," and formal oral presentation skills. Poor grammar is detracting in professional situations, so clean up the verb tenses and pronoun cases. However, even if your grammar is perfect, you have to be understood. I know several people who have benefited greatly from a bit of speech training or an accent neutralization course, depending on their particular situation. Finally, take opportunities to make oral presentations to groups small and large, because chances are you will have presentations to make in the future. Remember, practice makes perfect.

What Is Biostatistics?

Biostatistics is the science of obtaining, analyzing, and interpreting data using statistical theory and methods to address problems in the biological and health sciences. Unlike departments of statistics, which are generally found in a university's college of arts and sciences, departments of biostatistics are found in a university's school of public health or school of medicine.

My final piece of undergraduate advice to those who are math majors: Give your inner nerd a rest. Take literature, art, music, science, history, philosophy, psychology, or whatever interests you to round out your education. If you are going to spend the rest of your professional life applying math to the biological and medical sciences, use the time in college to add balance to your life. My senior advisor wisely suggested I refuse the math department's offer to join the honors program because that program required I take extra hours in math. If I was going to graduate school in biostatistics, he advised, I needed to broaden my college experience more than I needed to graduate with honors. I took pottery instead.

Degrees: While there are exceptions, most of us who call ourselves "biostatisticians" have a degree from a statistics or biostatistics department, but what degree should you seek—a bachelor's, master's, or doctorate?

Degrees do matter because they are like union cards: They open doors of opportunity.

If your aim is to develop new theoretical statistical methods, then you would be well served obtaining a theory-based doctorate from a theoretically inclined statistics or biostatistics department. If your aim is to teach in a biostatistics department, then again, you will need a doctoral degree.

However, if you prefer to work in government, industry, or an academic or nonacademic clinical trial research environment, then a doctorate is an option, but not a requirement. And if your goal is to become a proficient SAS programmer in clinical trials, then a master's degree or even a bachelor's degree in biostatistics will serve you well. With just a bachelor's degree, you can obtain a position that allows you to confirm your interest in biostatistics before launching into a graduate program. At the same time, you will be gaining valuable experience that will enrich your graduate education and post-graduate opportunities.

A simple algorithm regarding degrees is that the more demanding the degree, the greater the range of opportunities and, in general, the higher the salary that you can command. For an idea of the 2009 salaries broken down by degree, years of experience, and type of job, see *http://magazine. amstat.org/blog/2009/10/01/2009 salarysurveyoct09*.

While there is a considerable salary bump associated with the degree, a doctoral degree takes a lot of resources (your time and tuition money, if it is not available from other funding sources) and perseverance. If you cannot afford the time nor tolerate the effort of obtaining a PhD—or if "doing school" is not your thing—fear not. A good career is available to those with a master's degree.

Jobs: What do you want to do? Chances are you do not know what career is best, and even if you think you know, your plans may change with time and circumstances. I graduated with my PhD thinking I would teach biostatistics forever. That never happened. I ended up teaching elementary math and statistics in a mathematics department for three years before moving into industry (Ralston Purina), medical devices (Ciba Corning Diagnostics Corporation), the pharmaceutical industry (Astra), and consulting to the pharmaceutical industry (Rho, Inc.) While this career path was not my plan, it has worked well for me. Because a biostatistician is so employable, I was able to move where my husband moved and maintain my career in biostatistics.

Gain Insight into the Profession: The more you learn about the profession, the better you will be able to prepare yourself. To consider what a career in statistics might encompass, check out the following websites:

http://biostatpharma.com

www.sph.unc.edu/bios/ prospective_students_ 13235_10577.html

www.public-health.uiowa.edu/ biostat/video/index.html

www.sph.umich.edu/ richmedia/sph/prospective_ depts/biostat/player.html

You also can find sites by searching "prospective student" and "biostatistics." There are summer programs in statistics at some universities and some corporate internships available (see *www.amstat.org/education/ internships.cfm* or search the web for "biostatistics" and "intern"). Also, visit the American Statistical Association's website at *www. amstat.org/chapters* to see whether there is a local chapter near you and what activities it sponsors.

Finally: Good luck on your adventure in biostatistics! ■

2011 FDA/Industry Statistics Workshop on Tap for September

Joan Buenconsejo, FDA, and Brenda Crowe, Eli Lilly and Company

This three-day workshop is one of a series of annual meetings that has been sponsored by the ASA Biopharmaceutical Section in cooperation with the U.S. Food and Drug Administration's (FDA) Statistical Association since 1996. Held each September in Washington, DC, short courses are scheduled on the first day, followed by two days of sessions on the science and statistics associated with the development of new medical products (e.g., pharmaceuticals, biologics, and devices). The workshop has been popular since its inception because it provides a unique opportunity to bring together statisticians from industry, academia, and the FDA for an open dialogue about issues of mutual interest.

Following is an overview of the workshop topics. For the complete online program and registration details, visit *www.amstat.org/meetings/fdaworkshop*.

Short Courses (September 19)

Statistical Issues in Drug Development

Group Sequential and Adaptive Clinical Trial Design

Study Design for Biomarker Development and Validation

Monte Carlo Simulation for the Pharmaceutical Industry: Concepts, Algorithms, and Case Studies

Key Multiplicity Problems in Clinical Trials

Bayesian Adaptive Methods for Clinical Trials

Session Topics (September 20–21)

Key multiplicity issues in clinical drug development

Personalized medicine: separating the hope from the hype

Current issues in the design and analysis of noninferiority trials

Early-phase study designs in oncology

Statistical issues in medical device trials

Decisionmaking and safety in clinical trials – graphs make a difference

Suicidal ideation and behavior in clinical trials: points of interest and statistical challenges for industry and regulators

Biomarker implements for advancing stratified medicine: statistical considerations for R&D and regulatory approval

Confounding issues: how to interpret and how to avoid

New paradigms for statistical support in R&D

Primary endpoint in oncology trials – OS or PFS

Issues and correlates of protection in vaccine development

The new topology of safety: program safety analysis plan and safety reporting rules

Addressing bias in the evaluation of diagnostics

Finding meaningful links between CMC quality attributes and clinical outcomes in QBD framework

Cognitive and surrogate biomarkers endpoints in clinical trials of early Alzheimer's disease

Bayesian analysis in the context of small clinical trials

Statistical challenges encountered in assessing immunogenicity data from vaccine trials

Propensity score analysis and observational studies

Making QBD work (small molecules focus)

Exposure-response modeling to facilitate future study designs of drug development programs

The Prevention and Treatment of Missing Data in Clinical Trials
November 1–2, 2011
Renaissance Woodbridge Hotel, Iseline, New Jersey

The U.S. Food and Drug Administration (FDA) recently commissioned the National Research Council of the National Academy of Sciences to prepare "a report with recommendations that would be useful for FDA's development of a guidance for clinical trials on appropriate study designs and follow-up methods to reduce missing data and appropriate statistical methods to address missing data for analysis of results." After creating the Panel on Handling of Missing Data in Clinical Trials, the National Research Council issued the report titled *The Prevention and Treatment of Missing Data in Clinical Trials* in December of 2010.

This two-day short course, developed by five of the panel members, will provide in-depth coverage of the content of the report. The presentations will be infused by newly developed case studies, which will demonstrate the latest thinking on the design and analysis of randomized studies threatened by biases caused by missing data. Tom Permutt and Bob O'Neil from the FDA will round out the list of presenters to provide a regulatory perspective.

The course is targeted toward data analysts, statisticians, and other quantitative scientists involved in the design, analysis, and reporting of results of clinical trials of devices or treatments subject to regulatory review.

Visit *www.regonline.com/preventionandtreatmentofmissingdata* to register or view travel/hotel information and a preliminary course agenda. Contact Ashley Gilliam (*agilliam@jhsph.edu*) with administrative questions and Daniel Scharfstein (*dscharf@jhsph.edu*) for specific questions about the course.

Regulatory impact and issues of joint modeling of longitudinal and time-to-event

Challenges of using meta-analyses in drug safety and other evaluations

Challenges and opportunities for designing and analyzing cancer vaccine/immunotherapy clinical trials

Making QBD work (large molecules focus)

Recent developments in adaptive design methodology

Sensitivity analyses of incomplete longitudinal clinical trial data

Challenges in subgroup analyses in multi-regional clinical development

Statistical considerations for assessing biosimilarity and interchangeability of follow-on biologics

Problems associated with unbalanced center enrollment

Implementation and conduct of adaptive trials

Discussion of the 2010 National Research Council's recommendations for the prevention and treatment of missing data in clinical trials

Statistical methods in nonclinical data analysis

Benefit-risk: case studies and panel discussion

Multi-regional trials with different endpoint requirements by region

Evolving role of data monitoring committees in the 21st century

Patient-centered outcomes research and health economics outcomes research

Members of the organizing committee look forward to seeing you in September. Conference attendance will be limited to 750 participants, so be sure to register early. ■

USCOTS Has Another Exceptional Year

The fourth biennial USCOTS took place May 19–21 at the Research Triangle Embassy Suites in Cary, North Carolina. Hosted by the Consortium for the Advancement of Undergraduate Statistics Education (CAUSE) and the North Carolina State University Department of Statistics, the conference theme was "The Next BIG Thing." The theme encouraged presenters and participants to think toward the future and examine what the next BIG thing in the field of statistics education is.

Attended by 400 people representing a range of institutions, departments, and countries, the conference provided an opportunity to learn and exchange ideas about teaching statistics at the undergraduate level through plenary talks, breakout sessions, posters, idea exchange sessions, and pre-conference workshops.

Plenary speakers Beth Chance and Allan Rossman, both of Cal Poly-San Luis Obispo, opened the conference with "Debating the Next BIG Thing in Teaching Statistics." Robert Gould of the University of California at Los Angeles presented "Citizen Statisticians: Modern Statistics for Modern Students," which focused on the new kinds of data and how the changing nature of our field will affect the classroom of the future. Wayne Stewart of the University of Auckland, New Zealand, kicked off Saturday's session with "Bayesian Statistics: The Second Coming," and Robert delMas of the University of Minnesota presented "It Takes a Village: Future Directions for Statistics Education Research."

The conference banquet, hosted by SAS/JMP, was held at the new conference center on the SAS campus. Deb Rumsey, USCOTS program chair, emceed the event. The CAUSEweb Resource of the Year Award was presented to Laurie Snell, Bill Peterson, and Jeanne Albert for their work on the Chance News wiki. Albert accepted the award with a wonderful tribute to Snell, who inspired the Chance project and kept it moving forward for nearly 20 years.

Dick Scheaffer, 2001 ASA president, was awarded the CAUSE/USCOTS Lifetime Achievement Award. George Cobb, Chris Franklin, and Ann Watkins paid tribute to Scheaffer's longtime contributions as a statistics education innovator and driving force behind national efforts in statistics education, such as the AP Statistics and Quantitative Literacy movements.

Dennis Pearl of The Ohio State University delivered a humorous after-dinner talk focusing on "personalized education" as the next big thing in statistics education.

The Posters and Beyond sessions included 68 reviewed presentations, which showcased many good ideas. The winners exhibited their work during these sessions each day.

The 18 invited breakout sessions offered a variety of topics, including statistics education research, using current technology and social media in face-to-face and online classrooms, using randomization techniques to teach statistics, and the second course and changing nature of the K–12 curriculum. There was also an USCOTS Theater session featuring education-based magic tricks by Mark Glickman of Boston University. Many of the plenary and breakout session presentations can be viewed on the USCOTS website at *www.causeweb.org/uscots*.

USCOTS 2011 Program Committee

Deb Rumsey, program chair

Dennis Pearl, CAUSE director

Joan Garfield, research program

Michelle Everson, technology program

Jackie Miller, Posters and Beyond chair

Chris Malone and Leigh Slauson, Posters and Beyond team

Jean Scott, CAUSE program coordinator

Justin Slauson, registration coordinator

Terry Monnett and Kythrie Silva, program and graphic design

Roger Woodard, NCSU host coordinator

USCOTS was preceded by the following four workshops, which were filled to capacity and presented the work of a National Science Foundation–funded project in statistics education over a two-day period:

Teaching the Big Ideas in Introductory Statistics, presented by Deborah Rumsey of The Ohio State University and Marjorie Bond of Monmouth College

Facilitating Student Projects in Elementary Statistics, presented by Brad Bailey of North Georgia College & State University

Teaching Statistics with R, presented by Danny Kaplan of Macalester College, Nick Horton of Smith College, and Randy Pruim of Calvin College

Computationally Intensive Methods in Teaching Introductory Statistics, presented by Webster West of Texas A&M University and Roger Woodard of North Carolina State University ■

ASA Announces Poster, Project Competition Winners

The American Statistical Association is pleased to announce the winners of the 2011 Poster Competition and Project Competition. First-place winners received $200, a plaque, a plaque for their school, and grade-appropriate graphing calculators provided by Texas Instruments. Second-place winners received $100 and a plaque; third-place winners received $50 and a plaque; and honorable mentions received certificates.

The poster and project competitions are directed by the ASA/NCTM Joint Committee on Curriculum in Statistics and Probability, with Linda Quinn of Cleveland State University serving as the poster competition leader and Jamis Perrett of Texas A&M University serving as the project competition leader. K–12 posters are due every year on April 1. Projects (written reports) for grades 4–12 are due every year on June 9. Information about the competitions—including previous winners, entry forms, instructional webinars, and a rubric of how the posters and projects are judged—is available at *www.amstat.org/education/posterprojects*.

2011 National Poster Competition Winners

Grades K–3

First Place

Theo Ryden, Amelia VanConant, and Olivia Waite
Toilet Paper Habits?
Holland Public Schools Gifted &
Talented Program
Holland, Michigan
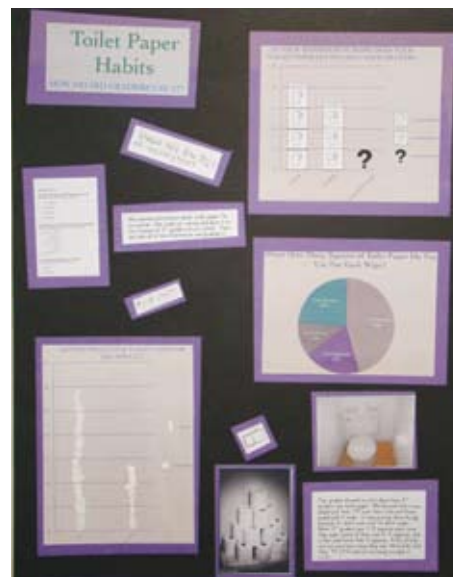
2011 National Poster Competition Winners
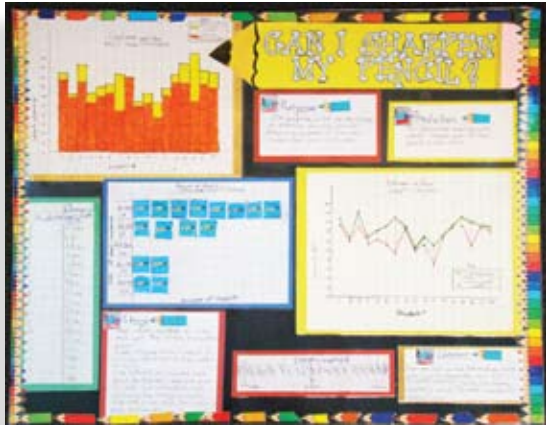
Second Place

Erica Simon, Lauren Maransky, Hannah Redding-Gurczynski, and Madeline Ruch
Can I Sharpen My Pencil?
Highland Elementary
Abington, Pennsylvania

Third Place

Kevin Luke and Devin Vollono
What Drink Has the Most Sugar?
Stepney Elementary School
Monroe, Connecticut
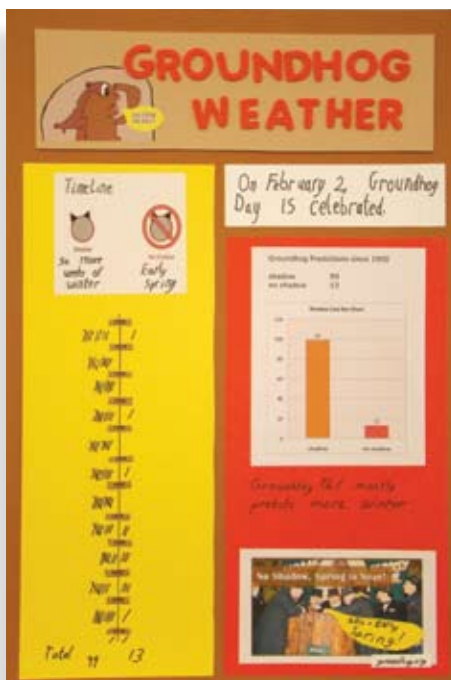
Honorable Mention

Carson McCue
Groundhog Weather
The Alexander Dawson School at
Rainbow Mountain
Las Vegas, Nevada

2011 National Poster Competition Winners

Honorable Mention

Caden Fujii
Missing Teeth
Roslyn Elementary School
Roslyn, Pennsylvania

Grades 4–6

First Place

Samantha Carpenter and Emily Marcum
When Do Students Visit the Health Office Most Often?
Estes McDoniel Elementary School
Henderson, Nevada

Second Place

Julian Perez
Boys vs. Girls Electric Match
Rydal Elementary
Huntingdon Valley, Pennsylvania
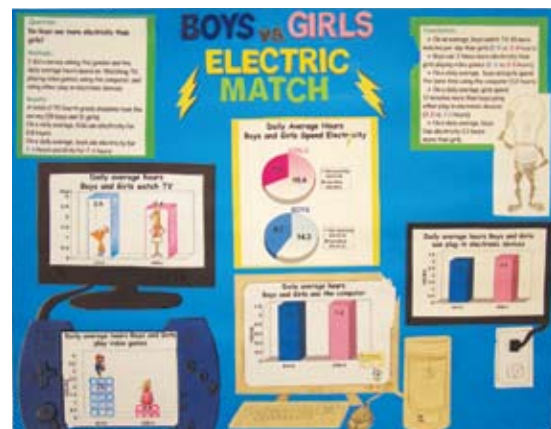
2011 National Poster Competition Winners

Third Place

Sam Palmer
Txt U L8er
Ben Franklin Elementary
Indiana, Pennsylvania

Honorable Mention

Scott Hadley
Do Batteries Grow on Trees?
Central Woodlands
Ada, Michigan

Honorable Mention

Kathryn Crummitt, Hailee Emge, Trinity Pillar, and Rebecca Warfield
Whirl It, Arch It, Loop It
Arbutus Elementary School
Arbutus, Maryland
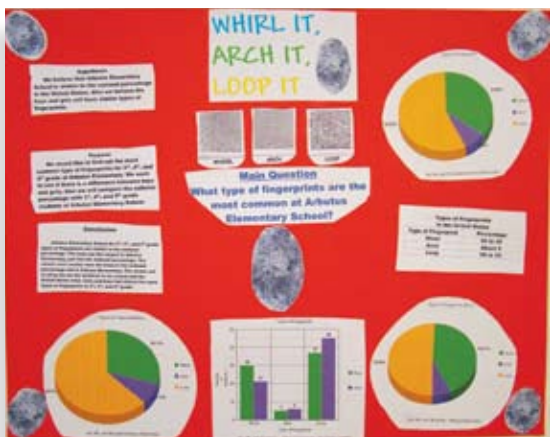
2011 National Poster Competition Winners

Grades 7–9

First Place

Doug Bender
Under the Weather?
Saltsburg Middle School
Saltsburg, Pennsylvania
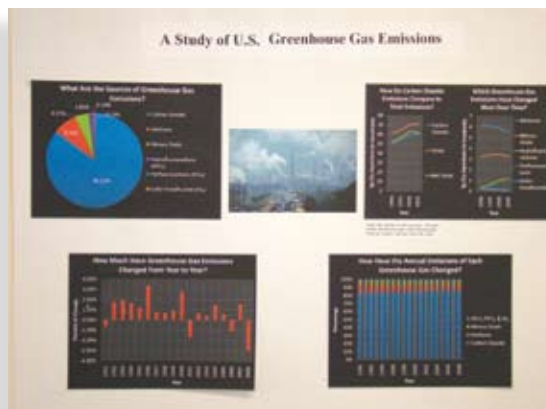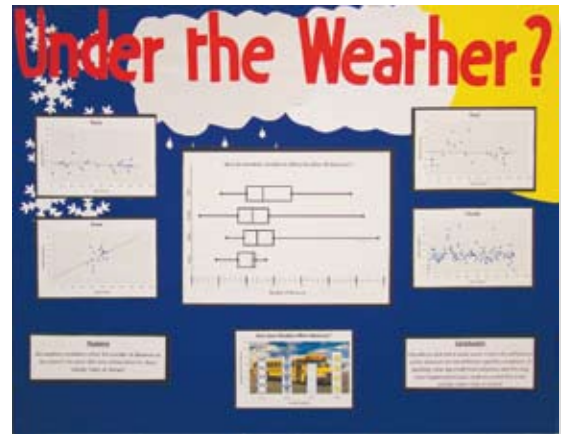
Second Place

Ryan Hall
A Study of U.S. Greenhouse Gas Emissions
Cuyahoga Valley Christian Academy
Cuyahoga Falls, Ohio

Third Place (Tie)

Rose Lisi, Kyri Marinos, Jimmy McEwan, and Kristina Vetter
Choose the Cookie That's the Best and Forget the Rest!
Madison Middle School
Trumbull, Connecticut
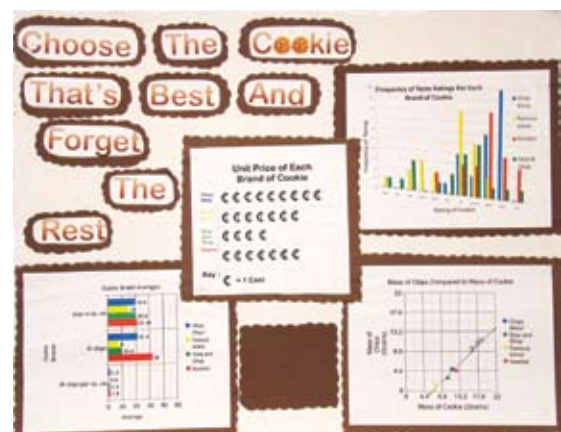
2011 National Poster Competition Winners
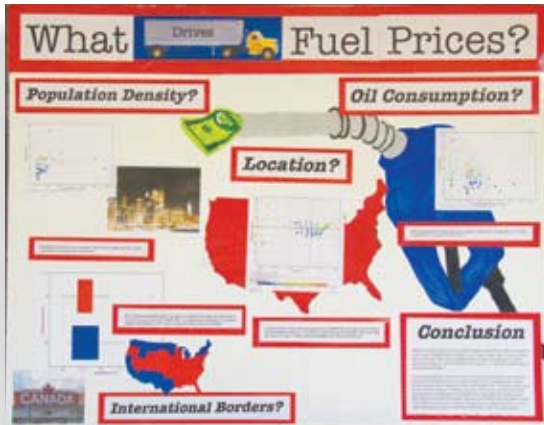
Third Place (Tie)
Josiah DeVezia
What Drives Fuel Prices?
Delaware Valley High School
Milford, Pennsylvania

Honorable Mention
Austin Chiu
Plants + Sugar = ?
Hyde Park Middle School
Las Vegas, Nevada

Grades 10–12
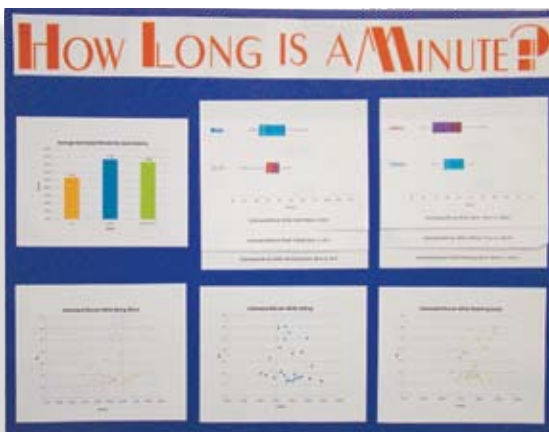
First Place
Alison Roudebush and Allison Koscianski
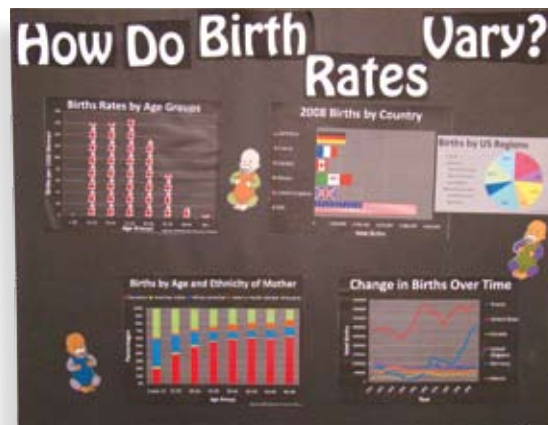*How Long Is a Minute?*
St. Joseph Academy
Cleveland, Ohio

2011 National Poster Competition Winners

Second Place

Alex Aleman, Melissa Buesch, Amber Dudley, and Olivia Sloan
Obesity: The Plague of the 21st Century - Are Teens at Risk?
Cuyahoga Valley Christian Academy
Cuyahoga Falls, Ohio

Third Place

Allyson Carpenter, Kemet Omari, and Tiana Williams
How Do Birth Rates Vary?
Cuyahoga Valley Christian Academy
Cuyahoga Falls, Ohio

Honorable Mention

Stephanie Liu
How Are Airborne Pollutants Affecting the Health of Americans?
Phillips Academy
Andover, Massachusetts

2011 Regional Poster Competition Leaders

Connecticut Chapter Statistical Poster Competition
Marianne E. Messina
Associate Director, Bristol-Myers Squibb, Global Biometric Sciences Oncology
www.amstat.org/chapters/Connecticut/home/Poster/poster_judging.htm

Michigan Statistics Poster Competition
Dan Frobish
Department of Statistics, Grand Valley State University
www.gvsu.edu/stat/mspc-home-30.htm

Nevada K–12 Statistics Poster Competition
David Thiel
K–12 Mathematics Coordinator, Clark County School District
www.amstat.org/chapters/nevada

Ohio Statistics Poster Competition
Jerry Moreno
John Carroll University
www.bio.ri.ccf.org/ASA/poster.html

Pennsylvania Statistics Poster Competition
Pete Skoner
Saint Francis University Science Outreach Center
www.francis.edu/paposter.htm

Washington Statistical Society Poster Competition
Jill Montaquila
Westat and JPSM
www.amstat.org/education/posterprojects

Other Region/ASA National Poster Competition
Leader: Linda Quinn, Cleveland State University
Contact: Rebecca Nichols, ASA K–16 Education Manager
www.amstat.org/education/posterprojects

Students outside the regional competition areas submit their posters directly to the ASA office, which are then separately judged by the Washington Statistical Society as part of the "Other" region. The best posters from each region are sent to the national judging. Information about regional poster competitions and winners is available on the individual regional poster competition websites.

2011 National Poster Competition Judges

Linda Quinn of Cleveland State University directs the national poster competition. The 2011 competition judging was held in Ohio and included the following judges:

Chandana Reddy, Cleveland Clinic

Steven Lewis, MetroHealth Medical Center at CWRU

Steve Richardson, S.A. Richardson & Associates

Tom Short, John Carroll University

Jerry Moreno, John Carroll University

Liang Li, Cleveland Clinic

Linda Quinn, Cleveland State University

2011 National Project Competition Winners

Each year, the statistical project competition attracts a variety of submissions in which students from grades K–12 conduct creative studies. This year's entries included studies regarding diaper absorbency, submarine sandwich preferences, subliminal messages, and comparisons across genders. The submission deadline for the project competition was delayed until June 9 this year to enable participation from high-school students who may have been preparing for the AP Statistics exam administered on May 11. The new deadline also made it possible for teachers who might otherwise be busy at the AP reading to assist with the competition judging. The statistical project competition was especially useful for these students because it provided them with opportunities to apply all the statistical skills they had acquired throughout the school year to solve real-world problems of interest to them. Motivation to participate in the competition included monetary awards, plaques, and new Texas Instruments calculators. Results of the project competition and a list of the judges can be found at *http://magazine.amstat.org/blog/2011/08/01/posterandproject*.

Get Involved

For information about how to start a regional poster competition or mentor students in you area, see the article appearing in the July issue of *Amstat News* at *http://magazine.amstat.org/blog/2011/07/01/poster-comp-how-to*. You can download a flyer about the ASA poster and project competitions and other K–12 statistics education programs and resources to share with your local schools at the bottom of *www.amstat.org/education*. For additional information or questions regarding how to get involved, contact ASA K–16 Education Manager Rebecca Nichols at *rebecca@amstat.org*. ∎

Obituary

Submitted by Kent Ward

Joe H. Ward Jr., an educator and longtime member of the ASA, died on June 23 at the age of 84 in San Antonio, Texas. As a research scientist for the U.S. government early in his career, Ward developed a number of innovative strategies using computer models in the Air Force Human Resources Laboratory, including a hierarchical clustering procedure that was used extensively in the Air Force's Comprehensive Occupational Data Analysis Program, a decision index used for sequential classification of personnel to jobs, and a policy development approach for combining multiple measures of outcomes into a single value.

Ward took a five-year leave of absence from the Air Force in 1966 to become the director of the Educational Technology Project in Texas that developed computer-based scheduling and instructional modules for the public education system. He then collaborated with Earl Jennings at The University of Texas in Austin to author *Introduction to Linear Models* in 1973.

After retirement, Ward became a champion for statistics education and was a longtime volunteer instructor at the Northside Health Careers High School in San Antonio, where he was a mentor to students in statistical methods for use in science and engineering fair projects. He traveled across the country many years as a judge for the International Science and Engineering Fairs, accompanied by his wife of 62 years, Bettie.

Ward's work in education in San Antonio culminated in 2004 when he was honored with the opening of the Joe H. Ward Elementary School in the Northside Independent School District. He spent the remainder of his life involved in the activities and projects of the school that was his namesake.

Hahn is an elected member of the International Statistics Institute and has been an adjunct professor at Union College and Rensselaer Polytechnic Institute (RPI).

Hahn has won numerous awards, including ASQ's Jack Youden Prize; Shewell Prize; Brumbaugh Award; Wilcoxon Prize; and Shewhart, Deming, and distinguished service medals. In 1984, he received GE GRC's Coolidge Fellowship, the organization's highest honor.

Hahn earned his PhD in operations research and statistics from RPI, holds MS degrees from Columbia University and Union College, and earned a BBA from Baruch College.

Doganaksoy has been a statistician and principal technologist at GE's GRC since 1990. He is also adjunct professor in the school of management at Union Graduate College in Schenectady, New York. He has written more than 60 papers and journal articles about statistical applications in quality, reliability, and productivity improvement.

Like Hahn, Doganaksoy was awarded the William G. Hunter Award by ASQ (2009). He is also a Fellow of ASQ and the ASA and an elected member of the International Statistical Institute. He served as an associate editor of *Technometrics* and senior editor of *Quality Engineering*.

Doganaksoy completed both his PhD in administrative and engineering systems (applied statistics) and MS in operations research and applied statistics at Union College in New York. He earned his MBA and BSc in management at Orta Dogu Teknik Üniversitesi in Ankara, Turkey.

Another book by Hahn and Doganaksoy, *A Career in Statistics: Beyond the Numbers*, was published in June by Wiley. ∎

S. Ejaz Ahmed, *Technometrics* book review editor, is pleased to announce that the 2010 Ziegel Prize winner is *The Role of Statistics in Business and Industry*, by **Gerald J. Hahn** and **Necip Doganaksoy**. The book describes, generally through case studies, key business problems and how statistics is used to address them. The review appeared in Vol. 52, No. 1 of *Technometrics*.

Hahn worked at what is now the GE Global Research Center (GRC) for 46 years and managed its applied statistics group for 28 years. The group is a recognized world leader in advancing quality and productivity improvement in GE's businesses and in the proactive use of statistics to address key manufacturing, engineering, and financial issues throughout the company.

Hahn is the author of more than 100 publications and wrote the Random Samplings column for Chemtech. He has co-authored four books and contributed chapters to 10 others. He is a Fellow of the American Statistical Association and American Society for Quality (ASQ) and has served both organizations in leadership positions, including on the editorial board of *Technometrics* and as founding chair of the ASA's Committee on Quality and Productivity.

Horton

The ASA's Boston Chapter is pleased to announce that **Nick Horton** was awarded the 2011 service award from the Council of Chapters in recognition of his many years of service to the Boston Chapter. An active member of the program committee, Horton also has served as the council representative and a member of the Council of Chapters Governing Board. He also led the birth of the Mu Sigma Rho initiative for the Boston Chapter and was recently elected to the ASA Board of Directors as the Council of Chapters board representative. ■

Dipak K. Dey, board of trustees distinguished professor in the department of statistics at the University of Connecticut, has stepped down recently as head of the department and joined the administration of the College of Liberal Arts and Sciences at UConn as associate dean (physical sciences). In addition to his duties overseeing the physics, chemistry, mathematics, geosciences, marine sciences, and statistics departments, Dey will take care of graduate education within the College of Liberal Arts, develop the international program, and foster interdisciplinary research within the university. ■

Two Mary G. and Joseph Natrella Scholarships Awarded

Will Guthrie, Natrella Scholarship Selection Committee Chair

Ambartsoumian

Szarka

The Quality and Productivity Section awarded two Mary G. and Joseph Natrella scholarships at the 2011 Quality and Productivity Research Conference, which was held June 8–10 in Roanoke, Virginia. The scholarships are funded by the ASA Natrella Scholarship Fund and Quality and Productivity Research Conference.

The recipients for 2011 are **Tatevik Ambartsoumian**, a doctoral candidate in the department of statistics at the University of California at Riverside, and **John Szarka**, a doctoral candidate in the department of statistics at Virginia Tech.

Ambartsoumian was recommended for the award by professors Daniel Jeske and Linda Penas. Her presentation at the conference was titled "Generalized Likelihood Ratio Cusum Based on a Nonparametric Kernel Density Estimation."

Szarka was recommended for the award by professors William Woodall and Jeffrey Birch. The title of his presentation was "Comparisons to the Early Aberration Reporting System's W2count Method."

Members of the Scholarship Selection Committee include Scott Kowalski (Minitab), Christina Mastrangelo (University of Washington), Sharad Prabhu (SAS), and Jolene Splett (National Institute of Standards and Technology).

sectionnews

Biometrics

During JSM 2011, the Biometrics Section presented its David P. Byar Young Investigator Award to Daniela Witten of the University of Washington for her paper "Penalized Classification Using Fisher's Linear Discriminant." She received $1,500.

In addition to the Byar award, the section also chose the following authors for travel awards:

- Genevera Allen of Rice University for "A Generalized Least Squares Matrix Decomposition"
- Qunhua Li of the University of California at Berkeley for "Measuring Reproducibility of High-Throughput Experiments"
- Jessica Minnier of Harvard University for "Risk Classification with an Adaptive Naïve Bayes Kernel Machine Model"
- Layla Parast of Harvard University for "Landmark Prediction of Long-Term Survival Incorporating Short-Term Event Time Information"
- Sihai Dave Zhao of Harvard University for "Grouped Variable Selection via Hierarchical Models"

Invited session ideas for JSM 2012—to be held July 28 to August 2 in San Diego, California—are wanted. A typical invited session consists of three 30-minute talks followed by a 10-minute invited discussion and 10 minutes of floor discussion. If you are interested in organizing an invited session or have an idea for one, contact the section's program chair, Timothy D. Johnson, at *tdjtdj@umich.edu*.

Also, ideas for short courses may be submitted to the section's continuing education chair, Annie Qu, at *anniequ@illinois.edu*.

Biometrics Section members are invited to attend the two-day short course on the prevention and treatment of missing data in clinical trials, hosted in Iselin, New Jersey, at the Renaissance Woodbridge Hotel November 1–2. The registration fee is $550 per participant and includes breakfast and lunch daily, as well as a paperback copy of the National Research Council report. To register, visit *www.regonline.com/preventionandtreatmentofmissingdata*. For administrative questions about the course, contact Ashley Gilliam at a*gilliam@jhsph.edu*. For specific questions about the course, contact Daniel Scharfstein at *dscharf@jhsph.edu*. To read more about the background and course review, visit the section news online at *http://magazine.amstat.org/?cat=17*.

Quality and Productivity

Members of the Quality and Productivity Section (Q&P) invite you to attend this year's Fall Technical Conference (FTC) in Kansas City, Missouri, from October 12–15. The theme is "Quality and Statistics: Getting Up to Date." The program includes a range of talks about subjects such as experimental design, reliability analysis, data mining, and statistical process control. Highlights include a plenary address by Christopher J. Nachtsheim from the University of Minnesota and the W.J. Youden Memorial Address by William I. Notz from The Ohio State University.

The Q&P invited session on Bayesian reliability features William Q. Meeker from Iowa State University, who will give a talk titled "The Cautious Use of Bayesian Methods in Reliability Analysis," and Kenneth J. Ryan from Bowling Green State University, who will give a talk titled "A Bayesian Hierarchical Power Law Process Model for Multiple Repairable Systems with an Application to Supercomputer Reliability."

Q&P also is sponsoring a short course on October 15, titled "Introduction to R," which will be taught by Garrett Grolemund. This course will cover the basics of R, as well as how to clean, visualize, and model data with R. No prior R experience is assumed. The course builds mastery in common data handling and analysis tasks and will include hands-on exercises.

For more information and the complete program, visit *http://cba.ua.edu/ftc2011*. ∎

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

chapternews

Central Indiana

Eric Sampson, ASA Journals Manager

On June 24, the executive committee of the Central Indiana Chapter hosted a seminar, titled "Personalized Medicine and Dynamic Treatment Regimes," presented by Abdus S. Wahed from the University of Pittsburgh.

The fast-paced, two-hour presentation focused on dynamic treatment regimes, in which treatments are assessed through individually tailored sets of decision rules specifying how treatment options should vary over time.

Whether it is dosage based on weight, age, or other metrics, or a treatment is chosen based on other factors, doctors have long used personal characteristics to address patients' conditions. What has changed, noted Wahed, "is the rapid development in our knowledge of human genetics."

For detailed chapter news, visit *http://magazine. amstat.org/blog/category/membernews/chaptnews*.

Southern California

The Southern California Chapter recently had the opportunity to participate in the Intel International Science and Engineering Fair (ISEF), which was held May 8–13 in Los Angeles. While this global science competition for high-school students does not have a separate award category for statistics, the ASA was one of many participating organizations that sponsored both judging and awards.

A large team of judges was required to review more than 1,200 entries from 65 countries, all of which were winners of various local and regional science fairs. After conducting interviews with the finalists in the morning, the judges selected the three winners and six honorable mentions.

The first-place award went to Andrew Liu of Henry Gunn High School in Palo Alto, California, who developed a method for identifying interactions in a network of immune system pathways that lead to transplant rejection using a statistical method called pathway analysis. Liu received $1,500, while the second- and third-place winners received $500 and $250, respectively.

Chapter president Robert Gould of the University of California at Los Angeles attended the special awards night to present ASA certificates to the winners. All winners and honorable mention awardees received one-year subscriptions to *Significance* and *CHANCE* magazines.

To read more about the fair, visit the *Amstat News* chapter news online at *http://magazine.amstat. org/blog/category/membernews/chaptnews*.

Twin Cities

The Twin Cities (TC) Chapter was established in 1957 and currently has about 150 members. Regular chapter meetings are held at the University of Minnesota (UMN) and University of St. Thomas (UST).

This past year, several chapter meetings included presentations and dinner or refreshments. Some of the meetings were organized with the UST Applied Probability and Statistics departmental seminar, cosponsored by the Center of Applied Mathematics. The mean and standard deviation for attendance are 20 and five people, respectively. Food and beverages are available free of charge for chapter members, while nonmember students are charged $3 and nonmembers are charged $10.

Recent discussions included the following:

- Galin Jones, UMN School of Statistics: "Markov Chain Monte Carlo: Can We Trust the Third Significant Figure?"

- Vladimir Cherkassky, UMN professor of electrical and computer engineering: "Predictive Learning: Methodology and Applications"

- Daniel Kaplan, De Witt-Wallace Professor of Mathematics, Statistics, and Computer Science at Macalester College: "Our Abstinence-Based Curriculum and Other Stories from Statistics Education" and "Computing Using the Most Probable Supposition"
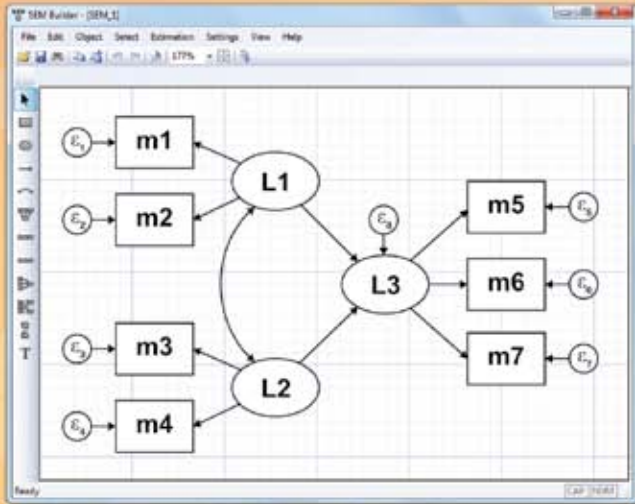
The TC Chapter also has sponsored several career days and received ASA career day grants to help support these events. For details and a photo, visit *http://magazine.amstat.org/blog/category/ membernews/chaptnews*. Meetings are announced on the chapter website at *http://sitekreator.com/ ASATwinCities/main_page.html*. ∎

To list your chapter's news in *Amstat News,* send an email to Managing Editor Megan Murphy at *megan@amstat. org* with the details.

2011

August

16–18—useR! Conference, University of Warwick, Coventry, United Kingdom
For more information, visit *www.R-project.org/useR-2011* or contact Jennifer Rogers, Department of Statistics, University of Warwick, Coventry, International CV4 7AL, UK; *J.K.Rogers@warwick.ac.uk.*

17–19—IAOS Satellite Conference to the ISI World Statistics Congress, Belfast, United Kingdom
For details, visit *isi.cbs.nl/images/2011IAOSBelfastSatelliteConf-Flyer.pdf* or contact Hans Lucas, P.O. Box 24070, Den Haag, International 2490 AB, The Netherlands; *IAOS2011@dfpni.gov.uk.*

21–26—International Statistical Institute: 58th ISI World Statistics Congress, Dublin, Ireland
For more information, visit *www.isi2011.ie* or contact Hans Lucas, P.O. Box 24070, Den Haag, International 2490 AB, The Netherlands; *isi@cbs.nl.*

21–25—32nd Annual Meeting of ISCB, Ottawa, Canada
For more information, visit *www.iscb2011.info* or contact Marie Lanouette, 1200 Montréal Road, Building M-19, Ottawa, Ontario K1A 0R6, Canada; +1 613-993-9228; *ISCB2011@nrc-cnrc.gc.ca.*

28–31—NZSA 2011 Conference, Auckland, New Zealand
For details, visit *www.nzsa2011.org.nz* or contact James Curran, Department of Statistics, University of Auckland, Auckland, International 1142, New Zealand; *j.curran@auckland.ac.nz.*

29–31—SAMSI 2011–2012 Uncertainty Quantification Program: Climate Modeling Opening Workshop, Pleasanton, California
For more information, visit *www.samsi.info/workshop/2011-12-uq-program-climate-modeling-opening-workshop* or contact Jamie Nunnelly, 19 TW Alexander Drive, P.O. Box 14006, RTP, NC 27709; (919) 685-9350; *nunnelly@niss.org.*

29–9/1—Seventh International Conference on Multiple Comparison Procedures, Washington, DC
For details, visit *www.mcp-conference.org* or contact Frank Bretz, Novartis Pharma, Basel, International 4002, Switzerland; +41613244064; *frank.bretz@novartis.com.*

30–9/2—Designed Experiments: Recent Advances in Methods and Applications, Cambridge, Massachusetts
For more information, visit *www.newton.ac.uk/programmes/DAE/daew04.html* or contact Dave Woods, Southampton Statistical Sciences Research Institute, University of Southampton, Southampton, International SO17 1BJ, UK; +44 2380595117, *doe@southampton.ac.uk.*

October

››18–20—2011 Nonclinical Biostatistics Conference, Boston Massachusetts
For more information, contact the Nonclinical Statistics Conference committee at *info@ncb2011.org.* Visit the conference website at *www.hsph.harvard.edu/ncb2011* for details.

››19—Symposium in Honor of Brad Efron, Silver Spring, Maryland
For more information, email *LargeData@s-3.com* or contact Hilda Maibach, 8757 Georgia Ave., 12th Floor, Silver Spring, MD 20910; (301) 628-3000; *Hmaibach@s-3.com.*

2012

April

››*2–4—SIAM Conference on Uncertainty Quantification (UQ12), Raleigh, North Carolina
For more information, visit *www.siam.org/meetings/uq12* or contact Kirsten Wilden, 3600 Market St., 6th Floor, Philadelphia, PA 19104; (215) 382-9800, *wilden@siam.org.*

July

››1–4—IMS Asia Pacific Rim Meetings, Tsukuba, Japan
For details, visit *http://ims-aprm2012.org/index.html* or contact Runze Li, Department of Statistics, Penn State University, University Park, PA 16802-2111; (814) 865-1555; *rli@stat.psu.edu.* ∎

To view the entire list of statistics meetings and workshops, visit *www.amstat.org/dateline.*

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

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

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

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

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

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

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

Maryland

■ The U.S. Consumer Product Safety Commission (CPSC) seeks a director (GS-15) for the division of hazard analysis. The director supervises a staff of statisticians who work on projects addressing the hazards associated with a variety of consumer products. Candidates with degrees in statistics, epidemiology, or mathematics and supervisory experience preferred. For job information and to submit your application, visit *www.cpsc.gov/about/hr.html*. The CPSC is an Equal Opportunity Employer. Selection for these positions shall be determined on the basis of merit and without regard to race, color, national origin, sex, political preference, marital status, sexual orientation, labor affiliation or non-affiliation, or other non-merit factors.

Massachusetts

■ Biostatisticians: (Directors, Principals, Seniors). Come join an industry leader where you will oversee and be involved with the production of clinical trial reports and in the provision of statistical services. Opportunities are client-facing and will involve your participation in capabilities presentations and bid defenses, general customer meetings, consultancy meetings with customers, and meetings with regulatory authorities. *www.Parexel.com.* Parexel is an AA/EOE.

New Hampshire

■ Postdoctoral Training Program, Quantitative Biomedical Sciences in Cancer, Dartmouth Medical School invites applications for postdoctoral training program designed to cross-train scientists in bioinformatics/biostatistics and epidemiology for cancer research. Candidates are appointed 2 years (minimum). Stipends, course tuition, and training certificates are provided. Applicants must possess a PhD or MD degree and be U.S. citizens, non-citizen nationals or permanent residents of the U.S. Send applications to *Crystal.Flaherty@Dartmouth.edu.* Dartmouth Medical School is an affirmative action/equal opportunity employer and encourages women and minority candidates to apply.

Ohio

■ Two faculty positions open in biostatistics, department of environmental health, University of Cincinnati, College of Medicine. Academic rank will be commensurate with credentials and experience. Candidates must have a PhD in biostatistics, statistics, applied statistics, or a related field. Apply to *www.jobsatuc.com,* position #211UC689. The University of Cincinnati is an Equal Opportunity/Affirmative Action Employer. We strongly encourage applications from qualified women and minorities.

■ Tenure-track assistant professor position (in exceptional cases associate professor may be offered) beginning January 2012. PhD in statistics, demonstrated excellence in teaching and research or evident potential. Review of applications begins

Assistant Scientist ~ Outcomes Research

Sanford Research/USD, part of Sanford Health and affiliated with the Sanford School of Medicine of the University of South Dakota, is recruiting a faculty member in outcomes research to work with our orthopedic surgery and rehabilitation group in developing their clinical, comparative effectiveness, and basic research program. The applicant should have a strong background in analysis of health care databases, cost effectiveness research, complex modeling issues, and secondary data analysis.

Applicants who also have training in bioinformatics are of particular interest. The position entails both analytic support for the group as well as independent research with a focus on orthopedic or musculoskeletal research. While this position is primarily a research position, some teaching opportunities exist. Successful applicants will be given a generous start-up package including research and travel support and are expected to develop extramural funding. All applicants must hold a doctoral degree in health services research, biostatistics, epidemiology, kinesiology (with a strong emphasis on methodology and biostatistics) or other related field. This degree must be completed by August 2011 as the anticipated start date of the position is September 1.

The position is located in Sioux Falls, SD, a diverse and vibrant community with recreational opportunities and cultural activities and a very affordable cost of living. Sanford Health is an integrated health care system located in South and North Dakota, with primary, secondary and tertiary treatment units, and which includes Sanford Research, with approximately 160 staff members with research concentrations in methodology, diabetes, cancer biology, cardiovascular, breast health, and health disparities.

Please apply for this position online at www.sanfordhealth.org/careers and refer to position #219138-046.

For more information please contact:
Paul A. Thompson, Ph.D.
Sanford Research/USD
Director, Methodology and Data Analysis Center
2301 East 60th Street North, Sioux Falls, SD 57104
Paul.Thompson@sanfordhealth.org

10/31/2011 and continues until position is filled. Send letter, CV, transcripts, and arrange to have three recommendation letters sent to Chair, Search and Hiring Committee, Statistics Dept., Oklahoma State University, Stillwater, OK 74078-1055. Visit *http://statistics.okstate.edu*. Oklahoma State University is an AA/EEO/E-Verify employer committed to diversity.

Virginia

■ Programmer. The Division of Translational Research and Applied Statistics, University of Virginia, is seeking a statistical programmer. Requirements: 2 years experience with proficiency in R/S-plus, SAS, and Java; Bachelor's degree or equivalent in statistics, computer science/engineering, or related discipline. To apply, visit *https://jobs.virginia.edu* and search on Posting Number 0607745. Complete a profile online, attach a cover letter, curriculum vitae, and contact information for three references. The University of Virginia is an Equal Opportunity/Affirmative Action employer. Women and members of minority groups are encouraged to apply.

Canada

Ontario

■ University of Waterloo. Post-doc, statistics and actuarial science. Duties: conduct research in classification, variable selection, high-dimensional data analysis; participate in prediction contests; help establish lab for recommendation systems; teach one undergraduate course. Requires: PhD, strong programming (R/Matlab essential; preferably also C/C++; working knowledge of MySQL, PHP, HTML, CSS templates) and excellent communication skills. Contact *m3zhu@uwaterloo.ca* (CV, one-page research statement, a writing sample, three reference letters). EOE. ■

Contacts

Main

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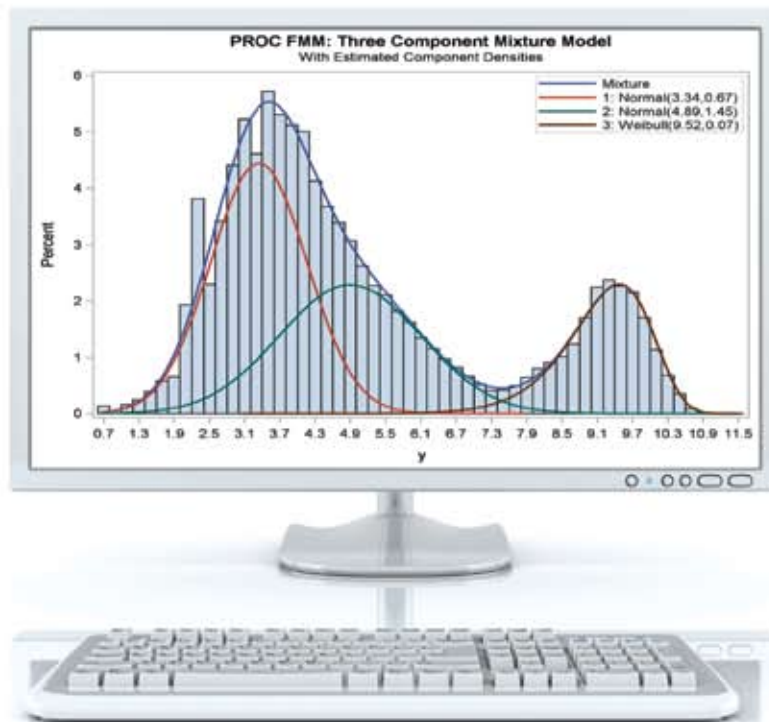
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