

April 2017 • Issue #478

# AMSTATNEWS

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



Mathematics and Statistics Awareness Month

## **CELEBRATE** the Significance of **Mathematics *and*** **STATISTICS**

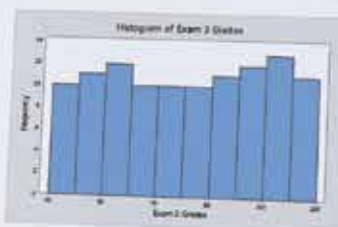
### **ALSO:**

BEA's Innovation Spurs  
Projects for Richer  
Economic Statistics

Why Be an Independent  
Consultant?

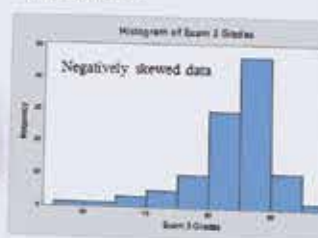
# Everything you need to plan your class.

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



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

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



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

## Measures of Spread

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

### Example 1

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

Brand A:	41	289	214	102	38	94	1
Brand B:	39	65	22	64	22	191	9
Brand C:	24	95	139	122	41	360	3

Here are the lifetimes plotted as comparison dotplots in Minitab:

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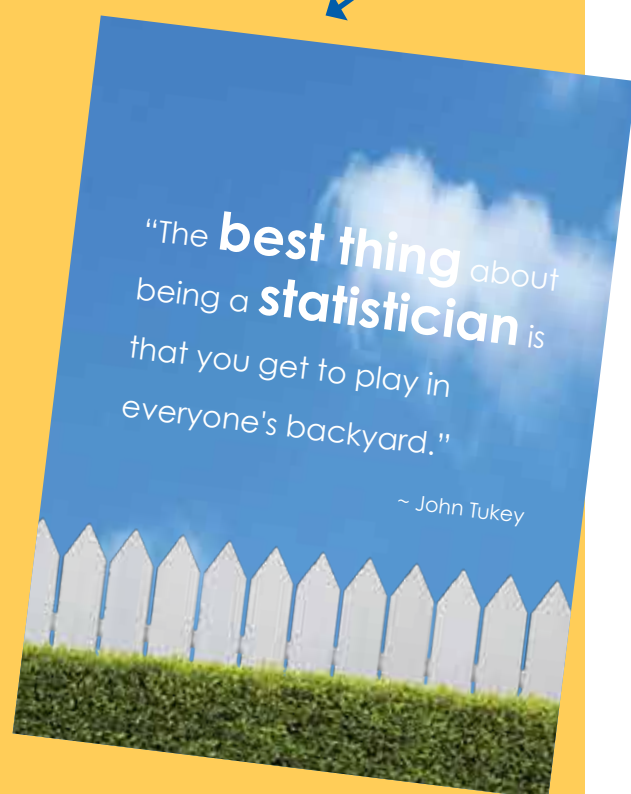
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This column focuses on what statisticians do when they are not being statisticians. If you would like to share your pastime with readers, please email Megan Murphy, *Amstat News* managing editor, at [megan@amstat.org](mailto:megan@amstat.org).

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

April is **Mathematics and Statistics Awareness Month**, and we have included a special poster for you in the centerfold of this issue.



If you would like a printed copy mailed to you, email the ASA's communication manager, Megan Murphy, at [megan@amstat.org](mailto:megan@amstat.org).

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# Analytics Have Taken Over Baseball. What's Next?

It's April and baseball season is beginning. More than one author has asserted that if poet Alfred Lord Tennyson had known American habits, his famous line would have been changed to, "It is spring and a young man's fancy turns to baseball."

But, I won't comment on poetry or love. That leaves me with baseball. Baseball is where I first learned about data, and now Big Data. The transformation of baseball (and football) to analytic strategies is the story of Big Data. It includes many of the thought processes and successes, but mostly seems to portray the possible promise of more concrete results sometime later.

So, lots of data is great. Well, maybe.

Think about its use in baseball. I grew up a baseball fan. My Cub Scout pack took us to both the Brooklyn Dodgers at minuscule Ebbets Field and the New York Yankees in the majestic stadium. My parents, both born in Germany, had no idea why one would concentrate on a sport when the announcer would simply summarize each half inning as "no runs, no hits, no errors."

Ah, but when something happens, the stadium fans erupt. Youngsters like me would learn batting averages and earned run averages. After a while, I came to reason that perhaps they invented baseball just for those who loved to analyze numbers. That was before I even knew what a statistician was. Was this what Abner Doubleday had in mind?

Baseball has even been used as a vehicle for teaching elementary statistics. I think the most common example is Jim Albert's 2003 text, *Teaching Statistics Using Baseball*.

But today, the statisticians have indeed taken over baseball ... at least to an extent. Let's look at what Big Data did for baseball. Of course, the oft-cited breakthrough occurred with the Oakland A's, as documented in the 2003 book *Moneyball* by Michael Lewis. (I own an autographed copy!) For

those of you who are not baseball fans, the basic premise had to do with how a low-budget team like the A's could do so much better than free spenders such as the Yankees.

The answer was found in data analysis. What did the A's, with their talented assistant general manager, Paul DePodesta, figure out? They learned that on-base percentage and slugging percentage were much better indicators of baseball success (in terms of winning games) than hits, doubles, triples, stolen bases, and home runs.

And, when I say DePodesta was talented, it was in statistical analysis. He never came close to playing professional baseball. The concepts really took off when *Moneyball* was made into a movie. Probably every statistician wanted to be Jonah Hill, who played the consummate data analyst. Interestingly, after a few baseball front office positions, DePodesta is now applying his analytic talents for the Cleveland Browns football team.

And where is baseball analytics today? In February, I was fortunate enough to attend a sports analysis discussion, sponsored by the ASA's Washington DC Chapter, the Washington Statistical Society. The baseball half of the program featured Kevin Tennenbaum of the Baltimore Orioles. Kevin discussed evaluating player talent. He captivated the audience for about an hour just talking about the defensive rating of an outfielder.

The field is divided into about 100 segments and the outfielder is judged on every fielding opportunity. This includes figuring out in each segment if the fielder could have, should have, might have, or actually did catch the ball. Then you add up all possibilities and can rate one fielder against another. And this is just for defense, not even considering the player's hitting talent. Further, this was just the "publicly available information." Kevin didn't discuss the propriety analyses the Orioles do.



Barry D. Nussbaum

But how do such advanced analyses get integrated into baseball operations? Kevin used my favorite word “communications” as the key to explaining all this, or a segment of it, to make a useful decision. Exactly the concern I expressed in my column last month.

I find this so analogous to the Big Data situation facing statisticians. A few pearls are found initially, such as the on-base percentage. Then mountains of data form a deluge that may or may not lead to a substantive improvement in the situation. But analysis proceeds to search for the next pearl.

By the way, many of the criticisms of Big Data, such as the origin and validity of data, as well as the sampling techniques, don’t even enter here. This isn’t sampling. All the data are real, accurate, and readily available. The basic question of what to do with all that data indeed remains.

The other half of the sports analysis discussion featured Daniel Stern presenting an equally fascinating analysis of football. Daniel is employed by the Baltimore Ravens football team. In contrast to Kevin, whose work concentrates on player evaluation in baseball, Daniel’s work involves the actual plays in football. Yup, what to do at second down and seven yards to go. As you can imagine, many variables go into this analysis. But it may not be what you think. I would have thought they would look for plays that would either get a first down or, perhaps, a touchdown. Well, that’s important, but the actual measure they use is expected points, and in a most sophisticated way.

In fact, consider the team contemplating a field goal from a certain yard line. If the kicker has probability  $p$  of making the field goal, I would have guessed that the expected value of the “go for the field goal” decision would be  $3p$ . Well, that is so 20th century. Apparently, they look one step further. Since the opposition gets the ball either way after a field goal attempt, you deduct a certain expected value of the opposition’s potential score on the next series of downs.

Perhaps even more intriguing is that the teams are not allowed to use computers in the stadium. And the coach has 20 seconds to call the next play. So, what do you do with all this information? I guess you summarize it somehow, and then, as Kevin would say, it comes back to communication. Daniel clearly was not permitted to divulge proprietary Ravens’ strategies.

So, is more technology coming to the rescue, or merely adding to the melee? Just before the Super

Bowl, Matthew Futterman of the *Wall Street Journal* reported the following:

Each player in Sunday’s Super Bowl will have a computer chip attached to his shoulder pad that tracks his every movement, part of a two-year-old program that opens the league and its fans to a whole new world of statistical possibility.

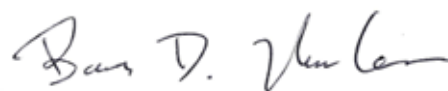
An even bigger mystery for league officials, coaches, and dataheads is what to do with this new trove of information. The idea was that, by tracking the speed, location, and movement of players, teams and fans could create metrics that would reveal who moved fastest in key situations, covered the most ground on defense, or found the open areas in a zone defense most often.

I have this vision that, much like the person who sneezes at an auction and ends up with an expensive Monet he never wanted, some football player on defense will twitch and a Super Bowl will be lost. Those of you who follow me on twitter (@StatisticsBarry) saw my tweet that this situation was lots of data seeking a useful statistic.

Now, what about other sports? I am quite sure basketball has analytic programs to replace all those white boards coaches use for describing plays. I guess things have become more sophisticated since the 1994 NBA draft, which included Jason Kidd being drafted from the University of California to the Dallas Mavericks. Answering reporters about fitting into his new team, Kidd announced, “We’re going to turn this team around 360 degrees.” Hmm. I would guess he was not put in charge of advanced analytics.

Sports is a great test field for Big Data, but we can go too far. I think the statistics world can learn and teach a great deal about the uses, abuses, and absurdities of too much data. But hope springs eternal, and the next breakthrough may be just around the corner.

Significantly forward,  
Barry



# Recognizing the ASA's Longtime Members

The American Statistical Association would like to thank its longtime members by continuing its tradition of honoring those who joined the association 35 or more years ago. This year, we recognize the following members for their distinguished and faithful membership.

If you are a longtime member and will be attending JSM 2017 in Baltimore, Maryland, please join us for a reception in your honor. If your name is not below and you believe it should be, contact Amy Farris at [amy@amstat.org](mailto:amy@amstat.org) to correct your record.

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Charles G. Pfeifer	Louise C. Remer	Eugene F. Schuster	Robert D. Small	Steven F. Thomson	George H. Wang
Louis A. Pingel	Kenneth J. Resser	Neil C. Schwertman	Dennis E. Smith	Robert D. Tortora	James F. Ward
Mike Pore	Jeffrey A. Robinson	Alastair John Scott	Martyn R. Smith	Ram C. Tripathi	William E. Wecker
Stephen L. Portnoy	James L. Rosenberger	Stuart Scott	William A. Sollecito	Bruce W. Turnbull	Edward J. Wegman
Frank J. Potter	Bernard Rosner	Nell Sedransk	Randall K. Spoeri	Neil R. Ullman	William W. S. Wei
Ross L. Prentice	Donald B. Rubin	Subrata K. Sen	M. K. Srirama	Gerald van Belle	Lynn Weidman
Philip J. Press	Barbara J. Rutledge	Jolayne W. Service	Allan Stewart-Oaten	Joseph G. Van Matre	Sanford Weisberg
Kevin Price	Thomas P. Ryan	Jayaram Sethuraman	Robert L. Stout	Lonnie C. Vance	K. Laurence Weldon
Philip C. Prorok	Julia Sabella	Glenn R. Shafer	William E. Strawderman	Kerstin Vannman	James P. Whipple
Thomas W. Pullum	Susan T. Sacks	Juliet Popper Shaffer	Nariaki Sugiura	Niels H. Veldhuijzen	Owen Whitby
Madan L. Puri	Francisco J. Samaniego	Paul Shaman	Moon W. Suh	Wayne F. Velicer	David G. Whitmore
David A. Pyne	Douglas A. Samuelson	Iris M. Shimizu	Richard A. Sundheim	Paul F. Velleman	Howard L. Wiener
Alfred W. Rademaker	Thomas J. Santner	Albert P. Shulte	Michael Sutherland	Hrishikesh D. Vinod	George W. Williams
J. G. Ramage	James J. Schlesselman	Robert H. Shumway	Ajit C. Tamhane	R. Lakshmi Vishnuvajjala	William J. Wilson
Calyampudi R. Rao	Joyce A. Schlieter	Jagbir Singh	Ronald A. Thisted	Kenneth W. Wachter	Robert F. Woolson
George F. Reed	Josef Schmee	Nozer D. Singpurwalla	John M. Thomas	Joseph J. Walker	Ann Graham Zauber
				Sylvan Wallenstein	Eric R. Ziegel
				Stephen D. Walter	Stuart O. Zimmerman

## 40-44 years

Dennis Aaron	William T. Bielby	Richard A. Chechile	Roberta W. Day	Larry D. Freese	Janet M. Hanley
Robert D. Abbott	Paul P. Biemer	Gina G. Chen	Virginia A. de Wolf	Stephen A. Freitas	Robert C. Hannum
Sandra C. Abbott	Robert H. Bigelow	James J. Chen	Michael L. Deaton	Barbara A. Gabianelli	David Hardison
John M. Abowd	Thomas E. Billings	William W.S. Chen	Pierre C. Delfiner	Paul Gallo	William V. Harper
Bovas Abraham	Richard A. Bilonick	Michael R. Chernick	Lorraine Denby	Stephen J. Ganocy	Frank E. Harrell
James H. Albert	Jeffrey B. Birch	Nanjamma Chinnappa	Wayne S. Desarbo	Edward E. Gbur	Stephen P. Harris
Robert W. Aldred	Herbert L. Bishop	Joan Sander Chmiel	David A. Dickey	Robin T. Geiger	Kenneth R. Hartmann
Rich Allen	Richard M. Bittman	Jai Won Choi	E. Jacquelin Dietz	Cynthia D. Gentillon	Gary D. Hatfield
Wendy L. Alvey	Jan F. Bjornstad	Peter D. Christenson	Ralph Digaetano	Malay Ghosh	Maurine A. Haver
Keaven M. Anderson	Mark M. Blanchard	B. Christine Clark	David P. Doane	David E. Giles	Lance K. Heilbrun
Robert J. Anderson	Peter Bloomfield	Cynthia Z.F. Clark	Allan P. Donner	John A. Gillespie	Harold V. Henderson
Sharon Anderson	Harvey Blumberg	George W. Cobb	Joseph R. Donovan	Dennis R. Givens	Ellen Hertzmark
Clifford W. Angstman	Dan C. Boger	Timothy C. Coburn	Janice L. Dubien	Beth C. Gladen	Thomas Herzog
Lawrence Annable	Robert J. Boik	Michael L. Cohen	Bonnie P. Dumas	Marcia A. Glauber	James L. Hess
Vincent C. Arena	James A. Bolognese	Michael P. Cohen	William D. Dupont	Joseph Glaz	Richard P. Heydorn
Steve Ascher	Dennis Boos	Steven B. Cohen	L. Marlin Eby	Avni Goeksel	Steven C. Hillmer
Arlene S. Ash	John E. Boyer	James J. Colaianne	Marlene J. Egger	Richard F. Goldstein	Susan M. Hinkins
Anthony C. Atkinson	Norman M. Bradburn	John R. Collins	Kathleen Louise Emery	Joe Fred Gonzalez	Jerry L. Hintze
Agustin F. Ayuso	Mary-Lynn Brecht	Salvatore V. Colucci	Wil B. Emmert	James H. Goodnight	Chihiro Hirotsu
Steven P. Bailey	J. Michael Brick	Bruce K. Cooil	Curtis S. Engelhard	Robert D. Gordon	Thomas P. Hogan
Stephen P. Baker	David R. Bristol	Kennon R. Copeland	Thomas W. Epps	Barry I. Graubard	Larry R. Holden
Saad T. Bakir	Ron Brookmeyer	Margaret D. Copenhaver	Samuel M. Epstein	Stephanie J. Green	Alan Hopkins
James A. Baldwin	Dean S. Bross	Charles D. Cowan	Sylvia R. Esterby	Timothy A. Green	Berne Martin Howard
Vincent P. Barabba	Edward C. Bryant	Brenda G. Cox	Michael J. Evans	William H. Greene	Ina P. Howell
Michael P. Battaglia	Thomas J. Bzik	John R. Crammer	Alan Fask	Joel B. Greenhouse	Marla L. Huddleston
Eileen J. Beachell	Lawrence S. Cahoon	Keith N. Crank	John P. Fazio	John Vic Grice	Mohammad F. Huque
Jay H. Beder	Patrick J. Cantwell	David F. Cruess	Ronald S. Fecso	Susan Groshen	David N. Ikle
Robert B. Bendel	Grant D. Capps	Andrew Joseph Cucchiara	Christopher A. Field	Marvin H. J. Gruber	Duane M. Ilstrup
James O. Berger	Arthur Carpenter	William G. Cumberland	David F. Findley	Leslie S. Grunes	John M. Irvine
Roger L. Berger	Daniel B. Carr	L. Adrienne Cupples	Carl Thomas Finkbeiner	Victor M. Guerrero	Alan J. Izenman
James S. Bergum	Frank C. Castronova	Robert D. Curley	Nicholas I. Fisher	Berton H. Gunter	Kirk A. Jackson
Catherine S. Berkey	Aki N. Caszatt	Andrew I. Dale	Allen I. Fleishman	Perry D. Haaland	William E. Jackson
Jose Miguel Bernardo	Amrut M. Champaneri	Prithwis Dasgupta	Hans-Theo Forst	David B. Hall	David Jaspen
Ernst R. Berndt	John P. Chandler	Charles S. Davis	Peter E. Fortini	James L. Hall	Jean G. Jenkins
David J. Bernklau	Judith-Anne W. Chapman	Thomas M. Davis	Janet F. Fowler	Nancy R. Hall	Linda W. Jennings
Bibhuti B. Bhattacharyya	Yogendra P. Chaubey		John D. Fox	William A. Halteman	Robert W. Jernigan
			Leroy A. Franklin	David C. Hamilton	Paulette M. Johnson

# Longtime members

Gerald A. Joireman	Bruce Levin	Marianne E. Messina	Karl E. Peace	Gilles F. M. Santini	Donna F. Stroup
Ian T. Jolliffe	Charles Lewis	Michael M. Meyer	N. Shirlene Pearson	Robert L. Santos	Walter W. Stroup
David C. Jordan	Richard A. Lewis	Terry G. Meyer	Peter H. Peskun	Nathan E. Savin	Perla Subbaiah
Harmon S. Jordan	Shou-Hua Li	Joel E. Michalek	David W. Peterson	John W. Sawyer	Robert D. Sutherland
David R. Judkins	Lawrence I-Kuei Lin	Richard O. Michaud	John J. Peterson	William G. Saylor	David A. Swanson
Lee D. Kaiser	Carol L. Link	John A. Miller	Daniel Pfeiffermann	Patricia A. Scanlan	Gerald R. Swope
Bruce A. Kaplan	Robert E. Little	John Francis Monahan	John G. Phillips	Stephen Schacht	Robert M. Tardiff
Theodore G. Karrison	George A. Livingston	Katherine L. Monti	Philip J. Pichotta	David J. Schaeffer	Erica S. Taucher
Daniel Kasprzyk	Greta M. Ljung	George E. Morgan	Linda Williams Pickle	Kenneth Schechtman	Robert L. Taylor
Richard W. Katz	Roger Longbotham	June Morita	Joseph G. Pigeon	David A. Schoenfeld	Marcia A. Testa
Jerome P. Keating	Michael T. Longnecker	Max D. Morris	Dale J. Poirier	Timothy L. Schofield	Hanspeter Thoeni
Sheryl F. Kelsey	Thomas A. Louis	Barbara G.	William E. Pollard	Friedrich W. Scholz	John H. Thompson
James L. Kepner	Milton W. Loyer	Mroczkowski	Darwin H. Poritz	Charles B. Schriver	Mary E. Thompson
Andre I. Khuri	Jay H. Lubin	Lawrence H. Muhlbaier	Randall W. Potter	John H.	Theodore J. Thompson
Byung-Soo Kim	James Lynch	John C. Nash	Manfred Precht	Schuenemeyer	Anthony D. Thrall
Ignatius A. Kinsella	Michael F. Macaluso	Reinhard Neck	Dale L. Preston	Donald J. Schuirmann	Richard B. Tiller
Nancy J. Kirkendall	John MacIntyre	James W. Neill	Howard M. Proskin	Steven J. Schwager	Ronald R. Titus
Syed N.U.A. Kirmani	Michael E. Mack	Margaret A. Nemeth	Lloyd P. Provost	William L. Seaver	Jerome D. Toporek
Rudolf G. Kittlitz	Kathleen S. Madsen	David Butcher Nolle	Clifford R. Qualls	Joseph Sedransk	David C. Trindade
Stuart A. Klugman	Jay Magidson	Robert M. Norton	John N. Quiring	Teddy I. Seidenfeld	J.R. Roger Trudel
Kenneth J. Koehler	Linda C. Malone	El-Sayed E. Nour	Tony K. S. Quon	Thomas R. Sexton	L. Claire Tsao
Edward L. Korn	Charles F. Manski	Thomas S.	Volker W. Rahlfs	Arvind K. Shah	Kam-Wah Tsui
Kenneth J. Koury	Kanti V. Mardia	Nunnikhoven	Philip H. Ramsey	Mohammed A. Shayib	Alan R. Tupek
Abba M. Krieger	Mary A. Marion	Barry D. Nussbaum	Gopa Ray	Shingo Shirahata	David L. Turner
Alok Krishen	Ray L. Marr	Kevin F. O'Brien	Rose M. Ray	Patrick E. Shrout	Gregory W. Ulferts
Pieter M. Kroonenberg	Donald L. Marx	Ralph G. O'Brien	William J. Raynor	Stanley A. Shulman	Jessica M. Utts
Naoto Kunitomo	Victor M. Matthews	Michael W. O'Donnell	Domenic J. Reda	Andrew F. Siegel	Esa Ilkka Uusipaikka
Alan H. Kvanli	LeRoy T. Mattson	Judith Rich O'Fallon	Mark R. Reiser	Richard S. Sigman	Pamela M. Vacek
James R. Lackritz	Timothy A. Max	Patrick D. O'Meara	Mark William Riggs	Jeffrey S. Simonoff	Richard L. Valliant
Nan Laird	Scott E. Maxwell	Bernard V. O'Neill	Paula K. Roberson	Terry L. Sincich	Richard Craig Van
Edward Lakatos	Fred M. Mayes	Terence John O'Neill	Rosemary A. Roberts	Judith D. Singer	Nostrand
Mansum A. Lam	Michael J. Mazu	David Oakes	Edwin L. Robison	Murray H. Smith	Stephen B. Vardeman
Kuang-Kuo	Donna K. McClish	Walter W. Offen	Frank W. Rockhold	Francisco P. Soler	Denton R. Vaughan
Gordon Lan	Joseph P. McCloskey	Francis G. Ogrinc	Mark H. Rodeffer	Dan J. Sommers	Joseph S. Verducci
Carol J. Lancaster	Janet Elizabeth	John A. Ondrasik	Robert N. Rodriguez	Keith A. Soper	Steve P. Verrill
J. Richard Landis	McDougall	Joyce Orsini	Russell H. Roegner	Terence P. Speed	Joseph G. Voelkel
Stephen S. Langley	Daniel L. McGee	William J. Owen	John E. Rolph	Bruce D. Spencer	Joachim Vollmar
Philip T. Lavin	Philip G. McGuire	Willis L. Owen	Anthony M. Roman	Clifford H. Spiegelman	Grace Wahba
Sheila M. Lawrence	Stephen A. McGuire	Mari Palta	Paul R. Rosenbaum	Nancy L. Spruill	Howard Wainer
Johannes Ledolter	Joseph W. McKean	William S. Pan	N. Phillip Ross	Donald M. Stablein	Joel A. Waksman
Kelvin K. Lee	Geoffrey J. McLachlan	Deborah L.	Lawrence V. Rubinstein	Edward J. Stanek	Katherine K. Wallman
Kerry L. Lee	Christine E. McLaren	Panebianco	Andrew L. Rukhin	William M. Stanish	Lars Walloe
Martin L. Lee	William Q. Meeker	Swamy A.V.B. Paravastu	David Ruppert	Richard M. Stanley	Sophronia W. Ward
James D. Leeper	Cyrus R. Mehta	Won J. Park	Estelle Russek-Cohen	Robert R. Starbuck	Herbert W. Ware
Stanley A. Lemeshow	Robert J. Meier	Robert E. Parson	Carl T. Russell	David W. Stewart	Stanley Wasserman
Heryee H. Leong	Kathleen A. Mellars	Van L. Parsons	Michael S. Saccucci	John A. Stewart	William L. Weber
James M. Lepkowski	Roy Mendelssohn	Sharon M. Passe	Thomas W. Sager	Sandra S. Stinnett	Thomas E. Wehrly
Trudy J. Lerer	W. David Menzie	Jeffrey S. Passel	John P. Sall	S. Lynne Stokes	
Martin L. Lesser	Michael Meredith	Kevin Pate	William M. Sallas	Michael A. Stoto	
Marcia J. Levenstein	Samuel Merrill	Charles L. Paule	Allan R. Sampson	Miron L. Straf	

# 35-39 years

## Longtime members

Michael A. Adena	Shelley B. Bull	Angela M. Dean	Janis G. Grechko	Imke Janssen	Hyunshik J. Lee
Joseph Adwere-Boamah	Christine M. Bunck	Roger L. Deaton	Edwin J. Green	Guillermina Jasso	Kwan R. Lee
Dorothee P. Aepli	Lawrence F. Burant	Michael R. Delozier	John W. Green	Dwight E. Jennings	Lawrence M. Leemis
Sung K. Ahn	Thomas E. Burk	Jeanne A. Devin	Daniel A. Greer	Christopher Jennison	John J. Lefante
Mohammad Ahsanullah	Harry F. Bushar	Dipak K. Dey	Yves Grize	Daniel R. Jeske	Robert George Lehr
Christian M. Alaouze	Richard J. Caplan	Marie Diener-West	David J. Groggel	Karl-Heinz Jockel	Greg M. Lepak
Adelin I. Albert	Lynda T. Carlson	Thomas W. Dobbins	Miriam S. Grosof	B. Alan Johnson	Hans Levenbach
Jeanne M. Aldred	Richard Raymond Carlson	Jeff F. Doerzbacher	Shulamith T. Gross	Gary R. Johnson	Martin S. Levy
Melvin T. Alexander	B. Thomas Carr	John E. Donmyer	Pushpa L. Gupta	LuAnn K. Johnson	Donald K. Lewis
Paul D. Allison	John F. Carter	Gerald A. Dorfman	Ramesh C. Gupta	Robert E. Johnson	Steven A. Lewis
W. Gregory Alvord	Nancy J. Carter	Gaylen W. Drape	Yesvy Gustasp	Wesley Orin Johnson	Wai K. Li
Yasuo Amemiya	L. Douglas Case	Kevin Ward Drummey	Sam Gutterman	Albyn C. Jones	Lillian S. Lin
John Angle	L. Douglas Case	Harold E. Dyck	Josue Guzman	Bradley A. Jones	Anne S. Lindblad
John E. Angus	John V. Castellana	Jean L. Dyer	Michael Haber	Karen C. Jones	Ernst Linder
Thomas Arbutiski	Deborah A. Cernauskas	Kirk A. Easley	Alula Hadgu	Michael P. Jones	Wayne S. Lindsay
Stephan Arndt	N. Rao Chaganty	Robert G. Edson	Michael D. Hale	Shelton M. Jones	Barbara A. Lingg
Tim Baer	Subhabrata Chakraborti	Don Edwards	Marc Hallin	Leslie A. Kalish	Charles L. Liss
Jenny A. Baglivo	Raymond L. Chambers	Thomas Barry Edwards	Katherine T. Halvorsen	Tzu-Cheg Kao	Jen-Pei Liu
John Bailer	Charles W. Champ	Bruce P. Ekholm	Michael S. Hamada	Roxanne Kapikian	Joseph J. Locascio
David L. Banks	Promod K. Chandhok	Paul J. Elson	Herbert Hamilton	John M. Karon	Wei-Yin Loh
Andrew Lewis Baughman	Douglass S. Chapman	Ronald K. Elswick	John B. Hannon	Richard L. Kasul	Stephen W. Looney
Moraye B. Bear	Chen-Hsin Chen	Brian John English	J. Michael Hardin	Charles R. Katholi	James T. Love
Mark P. Becker	Ching-Shui Cheng	Patricia A. English	Rachel M. Harter	Barry P. Katz	Joseph F. Lucke
Edward J. Bedrick	Ching-Shui Cheng	Eugene A. Enneking	Nancy C. Hassett	Darryl Katz	Helmut Luetkepohl
Alexander E. Belinfante	Richard P. Chiacchierini	Neil R. Ericsson	Trevor J. Hastie	Sallie Keller	Michael J. Luvalle
Michael E. Bellow	Yu-Kun Chiang	Kent M. Eskridge	William D. Heavlin	Elizabeth J. Kelly	Donald Macnaughton
Peter M. Bentler	Vernon M. Chinchilli	Mark A. Espeland	Nathaniel Alan Heckert	Joan Kempthorne-Rawson	Michael K. Mara
Dale E. Berger	Paul C. Chiou	David Fairley	Charles E. Heckler	Arthur J. Kendall	Laurentius Marais
Nancy Berman	Youn-Min Chou	Frederick W. Faltin	Daniel F. Heitjan	Harry J. Khamis	Mervyn G. Marasinghe
Debra H. Bernstein	Ronald Christensen	Dean H. Fearn	Wolf-Dieter Heller	KyungMann Kim	James C. March
Charles C. Berry	Christy Chuang-Stein	Michael B. Feil	Victoria Black Hench	John E. Kimmel	David A. Marker
James Calvin Berry	Constance F. Citro	Luisa T. Fernholz	David H. Henry	Robin Laurence Kirby	Paul J. Marovich
Jonas V. Bilenas	Murray K. Clayton	G. Donald Ferree	Cynthia C. Hewitt	Genshiro Kitagawa	Adam T. Martinsek
Warren B. Bilker	Mario A. Cleves	Eric Jeffrey Feuer	Susan G. Hilsenbeck	John C. Klensin	Joe Matsuoka
Bruce Steven Binkowitz	Daren B. H. Cline	Dianne M. Finkelstein	Joseph G. Hirschberg	George J. Knafl	Carl A. Mauro
Thomas R. Birkett	Avital Cnaan	Patrick E. Flanagan	Edward C. Hirschland	John Miller Koester	Charles Maynard
David K. Blough	Paul E. Coffman	Dean A. Follmann	Douglas A. Hlavacek	Henryka K. Komanska	Kenneth F. McCue
Carol Joyce Blumberg	Mark E. Cohen	Gosta Forsman	Myron Hlynka	David P. Kopcso	Peter McCullagh
David E. Booth	Stephen H. Cohen	T. A. Foster	Lorrie L. Hoffman	Samuel Koslowsky	Allen A. McIntosh
Richard C. Borden	Richard Daniel Cohn	Anne E. Freeny	Howard R. Hogan	Kallappa M. Koti	Raymond E. McIntyre
Victor Marek Borun	Hans Colonius	Arthur Fries	David B. Holiday	Ken G. Kowalski	Gregory C. McLaughlin
Steven B. Boswell	Michael Christopher Conlon	Shayne C. Gad	Paul S. Horn	Lawrence Krasnoff	Kenneth B. McRae
H. Christine Bourquin	Conlon	Joan B. Garfield	Carol C. House	Jeffrey P. Krischer	Shailendra S. Menjoge
Robert D. Bowser	Richard S. Conway	Michael A. Gates	Wei-Min Huang	Gregory A. Kruger	R. Daniel Meyer
Michael N. Boyd	Nancy R. Cook	Constantine Gatsonis	Norma Faris Hubele	Bertram Krumm	H. Andrew Michener
Nancy J. Boynton	Peyton J. Cook	Jeffrey J. Gaynor	Esther Sid Hudes	Katherine B. Krystinik	Rosemarie Mick
Rollin F. Brant	Patricia S. Costello	Philip M. Gbur	Beverley Adams Huet	Richard A. Kulka	Ruth M. Mickey
James E. Breneman	James A. Creiman	Joseph C. Gfroerer	Arthur L. Hughes	Lynn Kuo	Steven P. Millard
Pamela W. Broene	Noel A. Cressie	Subir Ghosh	Edward Hughes	Jurate M. Landwehr	Eva R. Miller
Thomas W. Broene	Douglas E. Critchlow	Michael E. Ginevan	Allen C. Humbolt	Linda B. Lannom	Michael F. Miller
Roger L. Brown	Leonard A. Cupingood	William J. Glynn	Luis H. Hurtado	Michael L. Latus	Renee H. Miller
William J. Browning	Estella Bee Dagum	A. Blanton Godfrey	Shelley Hurwitz	Edmund C. Lau	Margaret A. Minkwitz
Judith A. Buchino	Robin A. Darton	Alfred D. Godfrey	Deborah D. Ingram	Purushottam W. Laud	David H. Moen
	Marie Davidian	Miguel A. Gomez Villegas	Henry F. Inman	Lisa M. LaVange	Leyla K. Mohadjer
	Bruce M. Davis	Nancy M. Gordon	Debra J. Jacobson	David J. LeBlond	Donna L. Mohr
	Richard A. Davis	J. Brian Gray	Denis George Janky	Barbara A. Leczynski	Robert J. Mokken
	Thomas C. Dawe				

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Brian C. Monsell	Soo Peter Ouyang	Richard A. Rode	Sidney H. Schwartz	Eric R. Sowe	Robert L. Vogel
Leslie M. Moore	Art B. Owen	Jack Rodgers	Michael	Refik Soyer	Stanley Von Hagen
Jorge G. Morel	Albert Palachek	Ward Rodriguez	Schwarzschild	Floyd W. Spencer	Mark Von Tress
Walter T. Morgan	Alberto Palloni	Nestor Rohowsky	James R. Schwenke	John J. Spinelli	Edward F. Vonesh
Stephan	Franz Christian Palm	Javier Rojo	David W. Scott	Gene D. Sprechini	William Dennis Wacker
Morgenthaler	J. Lynn Palmer	Jorge Luis Romeu	Marilyn M. Seastrom	Kadaba P. Srinath	Paul G. Wakim
Elizabeth A.	Sastry G. Pantula	Elvezio Ronchetti	Gilg U.H. Seeber	Paul G. Staneski	Ann E. Watkins
Morgenthien	Corette Breeden	Robin L. Rose	Joanne B. Severe	Joel H. Steckel	Carol Weideman
Christopher H.	Parker	Mitchell J. Rosen	Joseph Severs	Leonard A. Stefanski	David L. Weimer
Morrell	Mary R. Parker	Gary L. Rosner	Bahman Shafii	David M. Steinberg	Clarice R. Weinberg
David T. Morse	Robert A. Parker	Peter E. Rossi	Ramalingam	Seth M. Steinberg	William J. Welch
Michael J. Morton	Jeffrey R. Parno	Peter J. Rousseeuw	Shanmugam	Lorraine C. Steiner	Stefan Wellek
Linda L. C. Moss	Lee Parsons	Keith F. Rust	Steven J. Shapiro	Barbara Stevens	Alan H. Welsh
Ronald P. Mowers	Antonio Pascual-	Roland T. Rust	Simon J. Sheather	James H. Stock	James G.
Daniel H. Mowrey	Acosta	Steven W. Rust	Mack C. Shelley	David S. Stoffer	Wendelberger
Robert A. Muenchen	Robert J. Pavur	Jim Rutherford	John T. Shelton	Maura E. Stokes	Joanne R.
Nitis Mukhopadhyay	Roxy L. Peck	Pedro J. Saavedra	Mark R. Shenkman	Mark C. Strong	Wendelberger
Keith E. Muller	Jane F. Pendergast	William H. Sachs	Malcolm J. Sherman	Mark Lionel Suda	Glenn D. White
Alvaro Munoz	Kimberly T. Perry	Jerome Sacks	Weichung J. Shih	Shumei Sun	David A. Whitney
Jay Munson	John D. Pesek	Mehmet Sahinoglu	Lucy Shneyer	James J. Swain	Dexter C. Whittinghill
Bengt Muthen	Joseph D. Petrucci	Ulderico Santarelli	Gary L. Shoop	Winson Taam	Priya J. Wickramaratne
Haikady N. Nagaraja	Gerald L. Phillips	Michael J. Santulli	Holly B. Shulman	Yoshio Takane	John L. Wieting
Daniel Najjar	Walter W. Piegors	Sanat K. Sarkar	Arthur R. Silverberg	Roy Noriki Tamura	William E. Wilkinson
Jayalakshmi Natarajan	Gregory F. Piepel	Miles M. Sato	Stephen D. Simon	Deborah L. Tasky	Thomas R. Willemain
William Navidi	David Pollard	Stephen M. Scariano	Douglas R. Sizemore	Greg C. Taylor	Christopher J. Williams
Barry L. Nelson	Chester H.	Daniel W. Schafer	Christopher John	George R. Terrell	Jeffrey R. Wilson
Larry Alan Nelson	Ponikowski	Nathaniel Schenker	Skinner	Jeffrey D. Tew	William E. Winkler
Dean V. Neubauer	Dudley L. Poston	Mark J. Schervish	Joan H. Skurnick	Brian J. Thelen	Jeffrey A. Witmer
Tie-Hua Ng	Paul N. Powell	Mark F. Schilling	Richard A. Smiley	David M. Thissen	Marty J. Witt
Truc Truong Nguyen	J. Michael Price	Brian R. Schlain	Charles Eugene	Neal Thomas	Luke G. Wolfe
Joyce C. Niland	Louis H. Primavera	Mark D. Schluchter	Smith	David J. Thomson	F. Lennie Wong
Michael A. Nolte	Jamie K. Pugh	David C. Schmittlein	Elizabeth C. Smith	Peter James	John R. Woods
Phillip N. Norton	William M. Pugh	Paul R. Schneeman	Richard J. Smith	Thomson	Emmanuel Yashchin
William I. Notz	James O. Ramsay	John R. Schoenfelder	Richard L. Smith	Luke-Jon Tierney	K. F. Yee
Douglas W. Nychka	Dabeeru C. Rao	Loren T. Schoof	Robert A. Smith	Naitee Ting	Linda J. Young
Thomas W. O'Gorman	Richard F. Raubertas	John D. Schoolfield	Stephen J. Smith	Ruey-Shiong Tsay	Elizabeth R. Zell
William P. O'Hare	Howard L. Rauch	Donald E. Schreiner	Steven M. Snapinn	Siu-Keung Tse	Dale L. Zimmerman
Yoshimichi Ochi	Nancy Reid	Linda Kay Schultz	Tom A.B. Snijders	Clyde Tucker	
Akinori Ohashi	William K. Rice	Lonni R. Schultz	Karen L.	Thomas P. Turiel	
Noboru Ohsumi	Wasima N. Rida	Phyllis A.	Snowdon-Way	David M. Umbach	
Thomas H. Oliphant	William J. Riley	Schumacher	Ying C. So	Thomas J. Uryniak	
Frank Olken	James S. Roberts	Lawrence A.	Jose Francisco Soares	Leslie A. Van Alstine	
George Ostrouchov	David M. Rocke	Schwartz	Joong Kweon Sohn	Mark J. VanRaden	

# JASA Editors Offer Advice to Authors

David Ruppert and Nick Jewell are co-editors of the *Journal of the American Statistical Association* Theory and Methods section. We asked them to offer advice for prospective authors and to discuss their thoughts about *JASA* and journal publishing in general.

## Tell us a little bit about the process, from submission to decision.

The entire review is conducted using the ScholarOne journal management system. Submitted papers first go to the editorial coordinator, Jamie Hutchens, to be checked for correct formatting and blinding. After Jamie has verified that a paper is ready for review, it goes into a “folder” of papers that need to be assigned to an editor. Each of us can either take a paper ourselves or assign to the other.

The paper then gets an editor screening review. About one-fourth of papers are rejected at this point. The most frequent reason for rejection is that a paper is narrowly focused and better suited to a more specialized journal.

Papers that pass the screening review are assigned to an associate editor. Selecting the best associate editor might be the most important job for an editor. Associate editors will sometimes reject a paper, themselves, often because the paper seems too incremental and sometimes because it is poorly written and difficult to read. Papers that are not rejected by the associate editor go to two, or sometimes more, referees.

Once the referees’ reports are in, the associate editor writes a report to the editor and sometimes to the authors making a recommendation. Frequently, the reviewers are in agreement and the editor’s job is easy. Occasionally, the editor needs to evaluate conflicting opinions very carefully before reaching a final decision.

## Do you have any advice for prospective authors?

Authors should be realistic and not expect all, or even most, of their papers to appear in top journals. We urge authors to submit only their best work to *JASA*. Also, many papers are submitted prematurely, before the ideas are fully developed and clearly explained.

Before submitting a paper, authors should think carefully about the most appropriate journal. Perhaps our biggest surprise has been the poor quality of some papers whose authors believe they are suitable for a journal with the stature of *JASA*.

## What are your top three pet peeves when it comes to submissions?

- 1) Researchers who agree to referee a paper, but never submit a report or even respond to emails from the editor or associate editor
- 2) Excessively long papers and unsolicited revisions
- 3) Authors exploiting the reviewing process to improve their work, rather than making sufficient effort up front

Certainly, the reviewing process is intended to improve papers and does that admirably, but a review should start with the best paper the authors can produce on their own.

## During your time as *JASA* co-editors, can you point to any articles or issues you are especially proud of?

*JASA*-Theory and Methods receives 760 new submissions each year. It’s been difficult to get to know many of the articles well. We are pleased with the discussion papers that have been appearing regularly, including the invited paper presented at JSM each year.

## What are the biggest challenges you face in your role as Theory and Methods editor?

Dealing with the very high submission rate has been a major challenge. Each of us was editing an average of one new submission a day.

## What are your personal visions for *JASA*?

We think *JASA* should publish only papers that focus on broad statistical issues and provide innovative methodology motivated by a real application. We have striven to take *JASA* to new ground where possible and not simply mine old topics.

Find out what they think needs to change in journal publishing. Visit the ASA’s publication website at <https://goo.gl/SCet65>. ■

### MORE ONLINE

Visit the ASA’s publication website at <https://goo.gl/SCet65> to read what the editors think needs to change in journal publishing.



## ASA LEADERS REMINISCE

# Barbara Bailer

*In the 21st installment of the Amstat News series of interviews with ASA presidents and executive directors, we feature a discussion with 1987 ASA President Barbara Bailer.*

**Barbara Bailer** enjoyed working at the U.S. Census Bureau. Starting as a GS-7, she worked her way up to Associate Director for Statistical Standards and Methodology. When she left the bureau, she became the executive director of the American Statistical Association. She then served as ASA president in 1987, becoming the only person to serve as both president and executive director of the association.

Upon leaving the ASA, Bailer became the Senior Vice President for Survey Research at the National Opinion Research Center in Chicago. When she retired in 2001, she and her husband, John, returned to Washington, DC.



**Q** You worked at the Census Bureau for almost 30 years. During your time there, what major statistical innovations did the bureau make?

**A** The Census Bureau has been a leader in the development of sample surveys and censuses. A very distinguished staff of statisticians had developed sampling for use in both. Instead of trying to get all the information from everyone in the census—on income, education, etc.—the census statisticians used a sample and collected only a few items from everyone. During the late 1950s, Morris Hansen, William Hurwitz, and William Madow wrote a two-volume work [*Sample Survey Methods and Theory*] on sampling and illustrated different sampling methods for different populations.

Following the continued development of sampling, the bureau undertook work for other federal agencies. The staff knew how to select samples, the work force to collect the data was there, and the

statisticians knew how to process the data and present it clearly to folks in other agencies.

A major innovation in the 1960 census was the move from personal enumeration, in which census field persons knocked on each door and interviewed the residents, to a mail out-mail back census. Several experiments were run showing the effect of enumerators on census data was decreased when people answered for themselves.

Of course, the introduction of computers changed everything. The huge ENIAC was first used in processing some of the 1950 census data. It was used on the economic censuses and all sample surveys. Most statisticians had to code their own inquiries. By the time I left the bureau, personal computers were on almost every desk.

Statisticians at the bureau began branching out when studying the census undercount, and hypotheses were introduced and tested. A sampling scheme was used to measure the undercount, as well as a method of demographic analysis. Statisticians also looked at question wording and derived tests to detect which wording was most effective.

It was an exciting time at the bureau.

**Q** How do you believe recent and emerging technologies will change the way the U.S. decennial census is executed?

**A** Following the examples of the past, the bureau will continue to develop new methodologies. Basically, in the United States, it is the belief that the best information comes from the persons themselves. However, information is available from other records that people have filled out. Perhaps the bureau could use some records to fill in missing items, instead of spending the time and money to follow up with nonrespondents several times. I also believe the bureau will find ways to use computers to do even more. Having seen censuses go from punch cards to sensing devices, I think there will continue to be improvements in data capture.

The bureau has made changes to every aspect of census-taking. The design of the questionnaire changes with every census. Its delivery has changed from having enumerators contact everyone to the U.S. Postal Service delivering most questionnaires. People fill out the questionnaire—by pencil, pen, and computer. Undoubtedly, computers will be used more in future censuses. The processing of the census will be subject to more advances. The use of record systems will help. Allowing people to respond by way of electronic means would also be helpful and is being tested.

**Q** Could you please explain the controversy that arose in the late 1980s over the use of post-enumeration surveys to adjust census results?

**A** The bureau has known for years that there is an undercount in the census and that it is concentrated in young men of color. The bureau published its results and asked advisory groups to discuss the problem. Cities thought they were losing money because there were more of the uncoun­ted within their boundaries. Many asked why the census was not corrected and made fairer to the cities if the bureau knew there was an undercount and how big it was. One problem was that the undercount was measured at the national level, and not in fine detail. An adjustment demanded data on a very local level so people could be added to the right blocks, counties, and states. The Post-Enumeration Survey was designed to get estimates of the undercount at lower levels.

The bureau decided in the late 1980s that it would try to adjust the census if the Post-Enumeration Survey data were valid. This caused a big uproar not because of statistical considerations, but because of political considerations. The undercounted young men of color resided primarily in cities, which would benefit from this adjustment. City dwellers tend to vote for the Democratic party, and the Republicans—who were in power—said there would be no adjustment.

**Q** What was the most challenging issue you faced during your term as ASA executive director? How did the ASA overcome this challenge?

**A** There had been very little change in the ASA bureaucracy for many years. Any new executive director was going to want to make changes and face the words, “We’ve always done it this way.” Sure enough. So, there were some minor issues that arose because of this.

The issue that was most challenging was the ASA’s relationship with the IRS. Within a few months of my arrival, I was called by an IRS agent, who said we were not reporting income and expenses correctly for our publications and owed a big sum of money. We were visited by an IRS team, who came daily to review our operations. It turned out that many other associations were also being investigated for the same problem. Every day, a bus load of IRS employees arrived in Alexandria to visit the many associations that reside there. After a few months, with some changes on the ASA’s part and some relaxing demands by the IRS, we came to an agreement and did not owe any money. What a relief!



Katherine Wallman, Barbara Bailar, and John Bailar at the ASA Longtime Member Reception during the Joint Statistical Meetings in 2001

**Q** You have the rare distinction of having served the ASA both as president and as executive director. What are the differences in the challenges faced by the holders of these offices? What are the differences in the opportunities enjoyed by the holders of these two offices?

**A** I enjoyed both positions very much. The president is chosen by the members and chairs the board of directors. Every president has some ideas he/she thinks would make the ASA stronger and attract new members. One of the things I did was to establish the position of an office of public affairs. This was not very controversial and just had to work its way through the board. Other challenges surrounded the issues of hiring new staff and setting up new publications. All of these were successfully managed.

The executive director is selected by the board and reports to the president and board of directors. This means that every year, as there is a new president, the executive director has a new boss. Almost all the interactions are harmonious and there is good agreement. However, when the two do not agree, difficulties can arise.

The executive director represents the ASA in many associations around Washington and meets a lot of interesting people and sees the way in which statistics can be used to help others. The executive director also works with government employees and learns about some of their basic problems. One of the things I most enjoyed about being executive director was getting to know committee and section members much better and work with them at solving problems. Also, the ASA staff was always a pleasure to work with. ■

# Guidance for Service on Federal Advisory Boards and Committees

Amy Nussbaum, ASA Science Policy Fellow



The mission and motto of the American Statistical Association is to “promote the practice and profession of statistics.” To raise the profile of statisticians within the federal government, the ASA’s science policy department staff have been nominating members to various advisory committees and boards in different government agencies. In addition, they have been working to strengthen the nominating process and become more aware of different opportunities.

Knowledge of statistical issues concerning collection and analysis of data is vital for the success of scientific advisory committees. Statisticians bring expertise in the analysis of and study of design and data collection to help ensure collected data can be used for their intended purpose. Collaborative deliberations would benefit from statisticians’ expertise and experience in working as part of multi-disciplinary teams.

Statistics also includes the study of quantifying uncertainty (essential for understanding risk and measurements with clear implications for the decision making process). It is easy to see that including statisticians would help these committees meet their scientific objectives. Here are some of the examples of recent nominations:

- Advisory Committee to the Director, Centers for Disease Control and

Prevention—  
Health Disparities  
Subcommittee (HDS)  
(<https://goo.gl/oQuvA8>)

The goal of the HDS is to provide subject-matter expertise to reduce health disparities. The ASA wanted to nominate a statistician who could ensure these disparities, as well as the results of different programs and interventions, were appropriately measured. To find qualified members, ASA science policy department staff worked with leadership of the ASA’s Health Policy Statistics Section.

- Food Advisory Committee, Food and Drug Administration (<https://goo.gl/UP1k7ke>)

This committee evaluates emerging food safety, nutrition, and other food- or cosmetic-related health issues. Evaluating available data is specifically mentioned in the committee’s duties. The ASA called on past appointees for service on this committee.

- Nominations for Peer Reviewers for the Environmental Protection Agency (<https://goo.gl/UL7LkD>)

The EPA invited the public to nominate scientific experts

to be considered as peer reviewers for contract-managed peer review related to documents intended to support the Safe Drinking Water Act assessment of lead in drinking water. A report, Proposed Modeling Approaches for a Health-Based Benchmark for Lead in Drinking Water, will also be peer-reviewed. The Statistics and the Environment Section was consulted to find qualified members, and for the first time, section officers made a call for volunteers in the section.

Several ASA members who have served on these types of committees shared some of their experience and advice. Common themes included having a good grasp of relevant subject matter and committee context. One member (who prefers to be quoted anonymously due to institutional policies) writes, “A statistician who can comment not only on statistical aspects of the review material, but subject matter aspects as well, makes the statistician a valued (and potentially THE most valuable) member of the review panel.”

Ted, another ASA member, recommended, “For being a constructive member, do your homework. Learn about panel history, precedents, and common discussion points. If possible, attend one or more meetings of the panel prior to taking an active role.”

Communication is another important aspect of committee

service. Our anonymous member writes, “The statistician also needs to have a history of being able to communicate (in speaking and writing) statistical aspects in an understandable way to people from other disciplines.”

Ted adds that one should “review materials ahead of time and plan in advance which points you will want to discuss/review with the other panel members. There won’t be enough time for every member to comment on every issue, so be judicious about where your input will have the most impact.”

Finally, several mentioned the “cardinal rule” of being a member of a review panel: writing and expressing comments as statements, not questions. Our anonymous member writes, “Too many people reviewing things only ‘ask questions,’ which provides no guidance to the authors of the material being reviewed about what is needed to resolve the issues. Being able to contribute to addressing/resolving issues is one of the most rewarding aspects of being on a review panel.”

Ted recommends committee members “consider how a seeming problem might be rectified (change in approach, clarification of methods, supplying detail, resolving apparent contradictions).”

We have been working to identify more nominating opportunities and engaging with different sections to find the best candidates for each position. We hope to make the broader community aware of these opportunities by updating the Science Policy page (<https://goo.gl/A0DC8w>), posting notices to ASA Connect, and engaging with section leadership. We are looking forward to strengthening the process and bringing statistical expertise to the federal government.

If you know of any nominating opportunities, contact ASA Science Policy Fellow Amy Nussbaum at [Nussbaum@amstat.org](mailto:Nussbaum@amstat.org). ■

## 2017 DATA CHALLENGE Sees 16 Contestants

The ASA’s Statistical Computing, Government Statistics (GSS), and Statistical Graphics sections are sponsoring the 2017 Data Challenge, which will take place at the Joint Statistical Meetings in Baltimore.

The goal of the contest, which began earlier this year with analyses of the Bureau of Labor Statistic’s Consumer Expenditure Survey, is to challenge participants to analyze a government data set using statistical and visualization tools and methods. Of the college students and professionals who submitted an analysis, 16 were chosen to present their results in a speed poster session at JSM. All JSM attendees are encouraged to view the presentations.

There will be two award categories: professional (one level) and student (three levels). These awards will be announced at the GSS general membership meeting.

The sections are also moving forward with a special issue of *Computational Statistics*, which will feature refereed articles from contestants in the 2016 Data Challenge. The data set for the 2016 challenge came from the Department of Transportation’s General Estimates Systems. For the 2017 challenge, the plan is to publish selected refereed articles in a special issue of the *Monthly Labor Review*. ■

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## New AMS Blog Covers Under-Represented Groups in Mathematics

A new American Mathematical Society (AMS) blog—called “inclusion/exclusion”—debuted recently at <http://blogs.ams.org/inclusionexclusion>. The blog will cover issues pertaining to marginalized and under-represented groups in mathematics.

The editor-in-chief, Adriana Salerno of Bates College, and editors Edray Goins of Purdue University, Brian P. Katz of Augustana College, Luis Leyva of Vanderbilt University, and Piper Harron of the University of Hawaii at Manoa, hope the blog will help develop a more inclusive, supportive, and diverse community of mathematicians.

The first posts are titled “Inclusion/Exclusion Principle,” “Hidden Figures: How and Why We Brought It to the 2017 JMM,” and “Hands Off My Confidence.” Future topics may include conferences targeted to under-represented groups; inclusive teaching strategies; summaries of current educational research; profiles of inspiring and successful under-represented mathematicians; and advice for students, faculty, and researchers at all levels.

The AMS invites readers to subscribe to the blog to receive notifications of new posts by email. Also, join the conversations by posting comments. ■



# BEA's Innovation Spurs Projects for Richer Economic Statistics

Brian Moyer, Director of the Bureau of Economic Analysis



**Brian Moyer** oversees the Bureau of Economic Analysis' production of official economic statistics, which provide a comprehensive, up-to-date picture of the U.S. economy that aids in decision making by businesses, policymakers, and households. He holds a PhD in economics from American University.

To continue capturing a full and detailed picture of a dynamic, \$18 trillion-plus economy, the people of the Bureau of Economic Analysis (BEA) have to be economic data pioneers. They are committed to innovating and exploring, whether the bureau is enhancing existing statistics or creating new ways to measure the U.S. economy. That mind-set is crucial to delivering on BEA's mission: producing the timeliest, relevant, and accurate economic statistics for the American public in an objective and cost-effective manner.

Here is a snapshot of a few of the data projects BEA's economists are working on.

**The Digital Economy.** We are moving forward on a three-pronged plan to better measure fast-changing technologies and their effect on the U.S. economy. One focus is refining price measurements to better capture innovations in high-tech goods and services such as software, cellphones, personal computers, computer servers, cloud computing, and medical imaging equipment.

To tackle improvements in quality-adjusted price measures for such products, BEA is doing the following:

- Conducting an in-house review of GDP and its components to identify areas in which existing quality-adjusted prices could be improved or new indexes could be introduced
- Partnering with source data agencies, including the Federal Reserve Board and Bureau of Labor Statistics, to improve software and medical equipment price measurement
- Engaging experts for specialized research such as building new price indexes for cloud computing

In addition, BEA economists are developing a roadmap to define and measure the digital economy. BEA is researching how to more accurately measure the impact of information technology on the overall U.S. economy and how to improve the measurement of digitally enabled commerce.

Third, BEA is researching the economic impact of "free" entertainment such as Facebook apps and internet games, which are largely supported by advertising revenue. And BEA is committed to better understanding the impact of technology-enabled, peer-to-peer access to goods and services—typically referred to as the "sharing economy."

**Health Care.** Created in 2015, our new set of health care statistics break out spending by the treatment of disease, such as circulatory diseases or cancers, rather than by the place of service, such as a hospital or doctor's office. Each year, BEA plans to release a fresh batch of health care statistics, building a longer time series. Data are currently available for 2000 through 2013. Figures for 2014 will be released later this year.

These data offer new insights into health care, which accounts for about 18 percent of the U.S. economy. After years of research, BEA created a "blended account," which combines data from multiple public and private sources, including large claims databases covering millions of enrollees and billions of claims.

In its next steps, BEA plans to research linking changes in the costs of treating diseases to improvements in the quality of treatments, including advances that lead to better health outcomes. That's one of the biggest challenges in precisely measuring medical spending and prices—not unlike what BEA is confronting in the high-tech sector.

BEA also plans to build a detailed input-output framework for health care spending, giving users a way to better analyze the production of goods and services by health care industries. BEA will incorporate prices that reflect the costs of treating diseases into the input-output framework.

**There's More.** We have other innovative data projects in the wings, including laying the groundwork for a new set of statistics—a small business satellite account. It would measure, for the first time, the size and health of a sector that's often at the leading edge of risk-taking, entrepreneurship, and economic growth in the United States.



BEA is also exploring the feasibility of measuring economic growth in the nation's 3,000-plus counties. These first-of-their-kind BEA statistics would help businesses identify local markets for their products, assist local governments seeking to attract investment, and give a fuller picture of the U.S. economic landscape.

On the global front, BEA is working to expand statistics to provide a more detailed look at how businesses buy and sell services around the world. Quarterly statistics on U.S. trade in services will be expanded to cover 90 countries and country groups (from the current 38.) Details will be published

about some of the most dynamic sectors, including research and development, intellectual property, and medical services.

**Data Tools.** We are also creating new ways to access our data. The newest offering makes data available through the bea.R Library, an open-source data tool for users of the statistical programming language "R." This gives users a quick way to access our economic statistics, requiring only a few lines of code to do so. BEA's data also is available through its application programming interface (API), interactive data tables, and other data tools at [bea.gov](http://bea.gov). ■

PRACTICAL TRAINING IN

# RESPONSIVE SURVEY DESIGN

This year, the 2017 Summer Institute in Survey Research Techniques at the University of Michigan Institute for Social Research is introducing three new one-day short courses in RSD, designed for anyone collecting survey data.



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[www.twitter.com/rsd\\_program](http://www.twitter.com/rsd_program)

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# Meet Hubert Hamer: NASS Administrator

*Amstat News invited Hubert Hamer—administrator of the National Agricultural Statistics Service—to respond to the following questions so readers could learn more about him and the agency he leads.*



A graduate of Tennessee State University, **Hubert Hamer** once served as director of the Statistics Division of the USDA, which produces and releases more than 400 national statistical reports each year covering the agency's crops, livestock, economic, demographic, environmental, and census programs. He also served as executive director of the NASS Agricultural Statistics Board and executive director of the Advisory Committee on Agriculture Statistics.



## What about this position appealed to you?

It has always been a goal of mine to provide leadership for the organization I grew up in. I've always loved and understood the importance of our mission to provide timely, accurate, and useful statistics in service to agriculture. I think it is rare that one has the opportunity to build a career in something meaningful that one really cares about. I feel very fortunate that I have been able to do just that by combining agriculture and statistics. By working my way up through the ranks at NASS in the Washington, DC, headquarters and in offices around the country, I've learned from my colleagues, supervisors, and mentors in NASS and USDA. I'm honored to be able to apply that knowledge and experience to lead this agency.

## Describe the top 2–3 priorities you have for the National Agricultural Statistics Service.

Service and our commitment to U.S. agriculture are what drive us at NASS. To that end, I have three areas of focus:

- Relationships with survey respondents
- NASS employees
- Advancing our use of technology to ensure data quality and usability

In my first months as administrator, I have made it a priority to get out and meet with staff, stakeholders, and respondents across the country. My purpose for these meetings is to strengthen the dialog and relationships to remain relevant and provide the outstanding products and services the agriculture community and others expect from us.

In turning to our staff, my goal is to have an environment in which our outstanding employees can do their best work. This includes a safe and inclusive workplace with diversity of people and ideas; where vigorous, respectful debate is encouraged; and where employees can continue to harness their talent and work ethic to fulfill both

their career goals and our agency mission. My expectation is that everyone who interacts with NASS staff finds us to be helpful, pleasant, and professional.

In the area of technology, we have amazing tools to help us that I couldn't imagine using even just a few years ago. I think George Washington, one of the earliest compilers of agricultural data, and those who later produced the first census of agriculture in 1840 would be astounded. Like other statistical organizations, we are working hard to efficiently and effectively harness geospatial tools, a wide range of available data, the internet, the cloud, data visualization, and many other constantly evolving assets to enhance data collection, analysis, and dissemination. To me, technology is our future.

## What do you see as your biggest challenge(s) for NASS?

Probably the three greatest challenges for us today are reflected in my priorities. I believe our greatest challenges are keeping up with expanding data needs, reversing the trend of declining response rates that many survey-based organizations are experiencing, and bringing along a next generation of statisticians.

Starting with the topic of meeting data needs ... with interests as varied as research and education, community-based planning, farm-related marketing, commodity markets, and the Farm Bill, we are constantly looking forward. For example, in the past few years, we've expanded our portfolio of publicly available data to include topics as diverse as grain crushing, flour milling, local foods, organic production, and the cost of pollination. We've also created a host of new types of data products. On obtaining sufficient response to surveys, I see this as a real challenge and an opportunity. We are reinvigorating our relationships with farm organizations to see if they can help us reach out to the farmers and ranchers from whom we request information. This has been a very positive effort on many levels.

Finally, one of the great things about NASS is our sense of family. Like me, many come out of college and stay here for their whole career. We have a large number of people who have been in the agency for decades and are starting to retire. We have a renewed focus on recruiting young people, training them, and keeping them so we maintain our knowledge and top-notch skill base.

### **What kind of support from the statistical community do you look for?**

The statistical community has always been an incredible resource for sharing experiences, technologies, and best practices, as well as for looking ahead for

new developments. We are also a great support for each other, which I always find valuable. A couple of areas I expect we'll be focusing on together are to understand and address the reasons for declining response rates, educate decision makers and stakeholders across disciplines about the value of data as a public resource, and collaborate on and use new technologies that enhance our data-collection and dissemination practices, so we all remain relevant.

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

This may sound routine, but maintaining our schedule of releasing some 450 reports a year on time and without errors. It is truly a testament to our staff's commitment, especially while

keeping up with new technologies and learning to collect data on new topics from farmers, ranchers, and agricultural businesses they may never have worked with before.

And along those lines, of course, it is a major achievement to conduct a successful Census of Agriculture every five years and create a portfolio of new customer-centric data products. We've been working since the release of the 2012 Census of Agriculture to get ready for the 2017 data collection, which will begin late November with a mail out to 3.1 million farmers and ranchers. We are really excited about a new online survey data-collection tool that we expect to use the first time for the census. We are testing it now and have great hopes that respondents will find it to be a convenient and flexible way to fill out the Census of Agriculture. ■

## **Census Bureau Releases Public Data**

The U.S. Census Bureau has released the initial version of public data from the reengineered Survey of Income and Program Participation (SIPP). This dataset contains variables from Wave 1 of the 2014 SIPP panel. The SIPP is the Census Bureau's premier survey for measuring the dynamics of income, employment, health insurance, and participation in government transfer programs. The survey provides detailed, monthly information about the family, social, and economic contexts of individuals and households. SIPP is a longitudinal survey, following the same set of respondents over a four-year period, allowing researchers to understand how these contexts change over time.

Accompanying the data release are a number of supporting materials, including research briefs, metadata, a Users' Guide, release notes, and user notes. The supporting materials are all available on the SIPP website ([www.census.gov/sipp](http://www.census.gov/sipp)), as is other information about the survey and a link to download the data. Additional announcements, including notifications of version updates, will be made as necessary through the SIPP website and the SIPP listserv. For questions or additional information, please see the SIPP website or email [census.sipp@census.gov](mailto:census.sipp@census.gov).



# CELEBRATE the Significance of **Mathematics** *and* **STATISTICS**

April is  
Mathematics  
*and* Statistics  
Awareness Month

April marks a time to increase the understanding and appreciation of mathematics and statistics. Why? Because both subjects play a significant role in addressing many real-world problems—climate change, disease, sustainability, the data deluge, internet security, and much more. Research in these and other areas is ongoing, revealing new results and applications every day in fields such as medicine, manufacturing, energy, biotechnology, and business. Mathematics and statistics are important drivers of innovation in our technological world, in which new systems and methodologies continue to become more complex.

“Because of the massive increase in the amount of data available, and because of the important contributions of statistics to making sense of the data, statisticians are in hot demand,” said Ron Wasserstein, the ASA’s executive director. “Jobs in statistics command good pay, have great working



conditions, and allow individuals to solve problems that make a difference to the world.”

In the age of Big Data, statistics underlies almost every decision made today, whether it's the effectiveness of a new drug or treatment or the debut of a mobile device. Statistics is how analysts convert raw data into useful information, from studies of proteins to surveys of galaxies.

Research in statistics and the mathematical sciences is important for its applications and because it trains one in critical thinking and problem solving. From magic squares and Möbius bands to magical card tricks and illusions, mysterious phenomena with elegant “Aha!” explanations have been part of both subjects for centuries.

This month, let's celebrate mathematics and statistics and the diverse researchers and students in these fields who are contributing so much to furthering discoveries, solving problems, and finding beauty in our world.

Mathematics and Statistics Awareness Month is a program of the Joint Policy Board for Mathematics (JPBM)—a collaborative effort of the American Mathematical Society, the American Statistical Association, the Mathematical Association of America, and the Society for Industrial and Applied Mathematics. ■

Share your story with us. Follow @AmstatNews on Twitter and use #MathStatMonth, or share your story on the ASA's Facebook page at [www.facebook.com/AmstatNews](http://www.facebook.com/AmstatNews).



In celebration of Mathematics and Statistics Awareness Month, we asked our followers on social media to tell us how they fell in love with statistics and how they chose statistics as a profession. Here are some of their answers.

Sibylle • @Sibyllestats

It is definitely Kathie Wallman Former US #ChiefStatistician WHO influenced my way to be active with @UNstats

Lindsey Leininger • @lindsleininger

Applied statistics chose me! I fell in ♥ w/data while completing a senior thesis in college. Have been hooked ever since.

Becky McNil • @BiostatBecky

Chance? Bombed GRE b/c dorm room above mine threw all-nighter. Epidemiology program rejected me, stats accepted!

Sally C. Morton • @sallycmorton

No doubt about it-I #lovestats!

**MORE ONLINE**  
Be sure to check the ASA's website throughout April for upcoming contests and activities!  
[www.amstat.org/ASA/We-are-Statistics.aspx](http://www.amstat.org/ASA/We-are-Statistics.aspx)



Robbie Emmet A combination of a great probability class and a seminar on capture-recapture sampling.

Chad Pickering I didn't choose statistics. Statistics chose me.

Read more posts on Page 48 of this issue!



# Master's Programs in Data Science and Analytics

More universities are starting master's programs in data science and analytics due to the wide interest from students and employers. *Amstat News* reached out to the statistical community involved in such programs. Given their interdisciplinary nature, we identified those that involved faculty with expertise in different disciplines to jointly reply to our questions. In 2015, for example, the ASA issued a statement about the role of statistics in data science, saying statistics is one of three foundational disciplines of data science. While the ASA has not issued a statement about the role of statistics in analytics, we assume statistics to also be foundational there. For this reason, we highlight the programs that are cross-disciplinary and engage statisticians. We will publish responses over a few issues of *Amstat News*.

~ Steve Pierson, ASA Director of Science Policy

## University of Tennessee



**Robert Mee** is the William and Sara Clark Professor of Business, Department of Business Analytics and Statistics, Haslam College of Business, University of Tennessee. He is an ASA fellow who earned his PhD in statistics from Iowa State University.

### Master's in Business Analytics

**Website:** <http://bas.utk.edu/academic-programs/masters/business-analytics/default.asp>

**Year in which first students graduated:** 2011

**Number of students currently enrolled:** 38 full time, 6 part time. In the fall semester, approximately 80 (first- and second-year combined)

#### How do you view the relationship between statistics and data science?

Statistics informs both data collection and analysis. Other disciplines are involved with acquiring, managing, and analyzing data, but statistics gives particular attention to potential biases in both collection of data and in estimates of models. Statistics has the tools for quantifying uncertainty, understanding sources of variation, and confirming or contradicting hypotheses. Data science is centered on data and algorithms, as opposed to statistics, which begins with a problem to be addressed.

#### Describe the basic elements of your data science curriculum and how it was developed.

The core MSBA curriculum combines statistics, data mining/machine learning, optimization, database, and other computing skills, as well as giving the students a foundational understanding of the

problems businesses address with analytics. Our students can choose electives in statistics, customer analytics, supply chain analytics, machine learning, or computer science to prepare them for their intended career direction.

We include a business perspective in our curriculum by maintaining close relationships with members of our Business Analytics Forum. In addition, many MSBA faculty members have extensive consulting and executive MBA teaching experience.

#### What was your primary motivation(s) for developing a master's data science program? What's been the reaction from students so far?

In 2009, our visionary department head brought an IBM white paper on the future of analytics to the attention of faculty. The paper emphasized applied statistics, business intelligence, and process optimization. At that time, we had two parallel

master's programs, one in statistics and the other in management science. We decided to combine these programs, creating a business analytics MS that now includes applied statistics, data mining, optimization, and Big Data tools.

### What types of jobs are you preparing your graduates for?

Data scientist, analytics consultant, data analyst for supply chain or marketing. The title business analyst is not quite suitable, since this is often the title intended for less-quantitative MBA graduates.

### What advice do you have for students considering a data science degree?

Take engineering calculus and learn some programming language. Pursue business analytics if you want to solve quantitatively-oriented problems and enjoy working with vast amounts of data to produce actionable insights that affect a business's bottom line.

The letter "T" is sometimes used to characterize the business analytics masters, with the top of the T reflecting the breadth of this interdisciplinary degree and the vertical part indicating depth in one

technical area. A statistics or computer science MS typically would have greater depth, but would lack the breadth of an MSBA.

### Describe the employer demand for your graduates/students.

Last December, we graduated our 6th class of MSBA students. Through 2015, we have had 100% placement within three months of graduation. Companies making three or more hires include Amazon, The Boeing Company, Eastman Chemical Company, Hanesbrands Inc., Home Depot, and Regal Entertainment Group. We have also had many graduates work for consulting companies, including Accenture, Deloitte, EY, McKinsey & Company, KPMG, PWC, and several smaller firms.

### Do you have any advice for institutions considering the establishment of such a degree?

Know your competitors. Consider the target incoming students, as this determines the length of the program. Consider your strategic advantages, especially ties with industry.

## George Mason University



**Robert Osgood** is the director of the data analytics engineering program. He has expertise in developing and applying analytics to law enforcement in digital forensics, enterprise case management, cyber crime, counterintelligence, information security/technology, team leadership, and critical infrastructure protection.



**Daniel Carr** is professor of statistics and director of the statistics concentration in the data analytics engineering program. His driving interest is to create statistical graphic designs and software to address constraints posed by human cognition and challenges posed by new kinds of data and large data sets.

## Master's in Data Analytics Engineering

**Website:** <http://dataanalytics.gmu.edu>

**Year in which first students expected to graduate:** 2014

**Number of students currently enrolled:** 290

**Partnering departments:** *Volgenau School of Engineering (Lead): Statistics, Systems Engineering and Operations Research, Information Sciences and Technology, Computer Science*

**Program format:** *The MS Data Analytics Engineering (DAEN) program is an in-person program, although some courses are offered online. Our student body is a mix of full-time and part-time, both domestic and international. We are actively involved with our corporate partners and career services unit to offer internships for students.*

**Please describe the basic elements of your data science/analytics curriculum and how the curriculum was developed.**

The MS DAEN program is interdisciplinary. It revolves around a 15-credit core component with a 15-credit concentration component for a total of 30 credits. Concentrations include applied analytics, business analytics, data mining, digital forensics, health care analytics, predictive analytics, and statistics. The core component consists of four courses, each taught in different departments, and a capstone.

Our admission criteria vary by concentration, but a minimum of one semester each of calculus, programming, and statistics is required. For the statistics concentration, three semesters of calculus, linear algebra, and probability are required.

**What was your primary motivation(s) for developing a master's data science/analytics program? What's been the reaction from students so far?**

The Volgenau School of Engineering at Mason, through working with its corporate partners and its advisory board, identified the need for data analytics education. Our investigation showed there was a growing demand for individuals with data analytics skills. Northern Virginia is a particularly appropriate area for employment in data analytics.

Student reaction has been extremely positive. Our spring 2017 enrollment of 290 students shows a definite demand for data analytics knowledge.

**How do you view the relationship between statistics and data science/analytics?**

There are two main components to data analytics: computing technology and statistics. Statistical analysis is what drives meaning from the massive data sets deposited with computing technology (hardware and software). The statistical component also includes visualization and data reduction.

**What types of jobs are you preparing your graduates for?**

Students are obtaining positions in a varied array of industries: cyber security, finance, government, information and knowledge management, software development, and e-commerce. Wherever data are collected, the need for analysis and statistical techniques is present.

**What advice do you have for students considering a data science/analytics degree?**

All departments (disciplines) look at the world from a certain point of view. Data analytics is not just computer science, or statistics, or business processes. It's all of the above. So students looking for a more interdisciplinary view must seriously consider data analytics versus one of the traditional degrees.

It needs to be pointed out that data analytics requires more than just novice knowledge of computer science and statistics. For example, students need a solid statistical foundation normally found in a typical undergraduate statistics class. Also, knowledge of probability is also quite helpful. A minimum of one semester of calculus is also critical. Students need programming expertise. Any language will work, but Python is a particularly valuable language. Knowledge of database design and interaction is also desirable. Development of communication skills is essential in dealing with interdisciplinary stakeholders.

With these core components in place, a student can leverage his/her data analytics learning experience at Mason to the fullest extent.

**Describe the employer demand for your graduates/students.**

Our interaction with our corporate partners and exit survey data show a significant demand for Mason graduates. The finance, government, and technical sectors have employed our data analytics graduates.

**Do you have any advice for institutions considering the establishment of such a degree?**

The program must be interdisciplinary. No one owns data analytics, but everyone uses data analytics, so everyone needs to be a stakeholder. At Mason, the department of statistics is housed in the engineering school, along with the department of computer science, department of information sciences and technology (IT management), and department of systems engineering and operations research (predictive analytics). While each department created its own concentration with its own set of prerequisites, a common set of core courses was developed with minimal prerequisites, and each department contributed a course to that core.

# University of Minnesota



**Cavan Reilly** earned his PhD in statistics at Columbia University in 2000, after which he joined the faculty in biostatistics at the University of Minnesota, where he has remained. Over the last several years, he has transitioned to working on more applied problems with an emphasis on clinical research on infectious diseases. ([www.biostat.umn.edu/~cavanr](http://www.biostat.umn.edu/~cavanr))



**Dan Boley** is professor of computer science and director of the graduate studies for master's of science in data science program at the University of Minnesota. His research interests include computational methods in linear algebra, scalable data mining algorithms, algebraic models in systems and evolutionary biology, and biochemical metabolic networks. ([www-users.cs.umn.edu/~bolej](http://www-users.cs.umn.edu/~bolej))

## Master's in Data Science

**Website:** [www.datascience.umn.edu](http://www.datascience.umn.edu)

**Year in which first students expected to graduate:** 2017

**Number of students currently enrolled:** 34

**Partnering departments:** *Computer Science and Engineering (Lead), Statistics, Public Health (Division of Biostatistics), Electrical and Computer Engineering*

**Program format:** *Combination/ (distance learning option available)/typically traditional full-time, but a part-time option is available. Assistantships are available, but not guaranteed. Thirty-one credit hours required; six credit hours over two semesters are for a cumulative research project.*

### Please describe the basic elements of your data science/analytics curriculum and how the curriculum was developed.

Our data science curriculum is intended to fill the spaces between algorithmics, statistical analysis, and modern computing infrastructure (these are the three core areas of our program). Finding the appropriate balance between these components and not simply duplicating and re-labeling existing opportunities for students was our guiding principle.

The curriculum was developed jointly by faculty from computer science and engineering, the school of statistics, electrical engineering and computer science, and the division of biostatistics in the school of public health. Through a series of meetings open to anyone interested, a consensus emerged that our program would focus on providing students with rigorous training in statistical methodology combined with a practical focus on computational feasibility in the age of Big Data, informed by a contemporary understanding of the possibilities engendered by the latest developments in hardware.

To distinguish our degree from the more business-oriented degree more commonly offered by many institutions around the country (including ours), we opted for a rigorous degree demanding a solid background in computing (3–4 semesters) and math/stat (3–4 semesters) at the undergraduate level as a minimum requirement. The other essential ingredient in our degree is a research component consisting of a two-semester capstone project.

### What was your primary motivation(s) for developing a master's data science/analytics program? What's been the reaction from students so far?

This degree was created to meet the demand from companies for practitioners with solid training in scalable computing methods combined with a solid understanding of statistical issues and methods. Individual programs already had solid curricula in place to address various components of data science, but it was hard for students to package a program with the necessary elements without a cross-disciplinary degree. Many students in all contributing programs were already trying to assemble plans of study that would provide them with the necessary expertise one would expect from a degree in data science; this program has formalized that training. The response from students thus far has been very positive.

### How do you view the relationship between statistics and data science/analytics?

We see statistics as but one component of a well-balanced program in data science. Some classical statistical techniques that served science well in the 20th century are simply not up to the task of dealing with data sets from the 21st century. This has led to extensive cross-fertilization between topics traditionally viewed as more within the realm of computer science and electrical engineering than statistics and ideas of great interest to statisticians (e.g., machine learning and causal inference). While such developments

are positively affecting the practice of statistics and computer science, there are still opportunities to advance science that require perspectives and skills beyond what is possible in the context of a statistics curriculum or a computer science curriculum. As such, we see the relationship as complementary.

### What types of jobs are you preparing your graduates for?

This is a new program, but our students have found internships at various companies employing sophisticated technology in the area, including health insurance, retail, and major social media companies on the coasts.

### What advice do you have for students considering a data science/analytics degree?

Such students should strive for a balance between the three core areas identified above during their undergraduate education. Less balance is appropriate for a student specializing in computer science or statistics. The usual calculus sequence and linear algebra are still essential. A year of probability and statistics and a year

of data structures and algorithms are becoming prerequisites. An internship is always helpful.

If a student is interested in graduate-level training in a field involving machine learning, data analytics, artificial intelligence, or data mining, having a solid computing background will be essential to implement anything novel. However, a solid statistics background will be essential to ensure that whatever is implemented gives statistically reliable predictions. Many employers have realized that a computing background alone is not sufficient for their next level of data systems development.

### Do you have any advice for institutions considering the establishment of such a degree?

Ensure there is no obvious path for students to accomplish the same Stat/CS curriculum through an existing degree (unless you are prepared to simply re-label the existing degree). Make a choice between a regular graduate program with a choice of courses from a short list of requirements on the one hand and a cohort program where all students take the same courses together in sync.

## Bentley University



**Mingfei Li** is an associate professor at Bentley University, where she has been a faculty member since 2008. She is currently serving as the MSBA program director and coordinator of the business analytics certificate and concentration programs. Her research interests include health analytics and sequential predictions.

## Master of Science in Business Analytics

**Website:** [www.bentley.edu/graduate/ms-programs/masters-in-business-analytics](http://www.bentley.edu/graduate/ms-programs/masters-in-business-analytics)

**Year in which first students graduated:** 2016

**Number of students currently enrolled:** 142 for the MSBA degree, 95 for a business analytics certificate or concentration within other degrees

**Partnering departments:** Mathematical sciences

**Program format:** Bentley University is a private business university broken down into a school of business and a school of arts and sciences. The master of science in business analytics (MSBA) is the only graduate degree offered by a department (mathematical sciences) not in the school of business. The department of mathematical sciences provides the quantitative curriculum for the MSBA degree, as well as all the other analytic courses offered at Bentley in statistics, mathematics, quantitative finance, data mining, Big Data, and operations research. Consequently, the department of mathematical sciences is, by necessity, interdisciplinary.

Currently, our program is an in-person program, but has synchronous hybrid classes for some of the courses. The MSBA degree requires 30 credits, and many courses require student projects. We have both full-time and part-time students. Bentley also provides scholarship and assistantship for some outstanding students.

### Please describe the basic elements of your data science/analytics curriculum and how the curriculum was developed.

Our program has introductory statistics as a program prerequisite. Students are not required to have coding/programming skills upon entry because we

offer programming classes from our curriculum: SQL, data science for R programming, reporting and data visualization, Java programming, HTML, Hadoop, MapReduce introduction, etc.



The MSBA has six required classes: SQL, operations research, and four business-oriented applied statistics classes. Students can choose four elective classes from a list, which includes classes from disciplines representing areas of business applications such as computer science, marketing, finance, economics, management, and informational process management. We collaborate with other departments on these elective classes.

For topics like database development and management, we use courses offered by our computer science colleagues. For business context, we use courses offered by departments of the school of business such as finance, marketing, management, economics, and information management. So while the MSBA program is highly interdisciplinary across both schools in our university, the core focus on analytics led to the decision that the MSBA be managed in the mathematical sciences department.

Beyond the existing curriculum, we continue to develop additional analytical courses to enrich the program curriculum such as machine learning (using R and Python) and design of experiments for business.

### **What was your primary motivation(s) for developing a master's data science/analytics program? What's been the reaction from students so far?**

Bentley began to offer analytic courses in the 1990s. In 2006, we began to offer a certificate program in business analytics in response to a strong demand for graduates with comprehensive skills centered on statistics and including computer sciences skills, business knowledge, and communications skills. With strong demand from both students and employers, we launched the MSBA degree program in 2013.

Our enrollment rapidly increased from our first class of 40 to the current 162 students. Applications have increased in a similar manner.

### **How do you view the relationship between statistics and data science/analytics?**

Applied statistics is the core of both data science and analytics. Understanding data and knowing how to analyze data are essential in most of applications. Computer science knowledge and programming skills are necessary to facilitate most analyses. Understanding the business questions and stakeholders' interests provide the guide to statistical thinking and planning for analysis. Therefore, in our program, we require that students develop competency and skills in all three areas: analytics (statistics and operations research), computer science (related to data management and computing), and business (context for application).

### **What types of jobs are you preparing your graduates for?**

Our graduates are hired by companies across different sectors, both private and nonprofit. Because of the wide applicability of business analytics, graduates have a variety of job titles such as business system analyst, data scientist, analytics consultant, data analytics adviser, research analyst, senior modeling analyst, business analyst officer, and business analyst. Employers of our students include CVS, National Grid, Toys R Us, Accenture, Deloitte, Ernst and Young, EMC, and Boston Children's Hospital.

### **What advice do you have for students considering a data science/analytics degree?**

Compared to a computer science degree or a traditional statistics degree, Bentley's MSBA is a degree that integrates applied statistics with computer science, operations research, and business knowledge. Through this degree, students get interdisciplinary analytic knowledge with a practical understanding of business. Graduates can work with both business and technical teams to be a problem solver and innovator, providing decision support and business insights.

### **Describe the employer demand for your graduates/students.**

There is a strong demand from employers for our MSBA students. From a survey of our first MSBA graduating class (88% response rate), 94% of graduates got full-time jobs within 90 days of graduation. The average annual salary for these graduates was \$78,000, and the median salary was \$80,000.

### **Do you have any advice for institutions considering the establishment of such a degree?**

Being an interdisciplinary program, the MSBA needs support from multiple academic and administrative departments. Communication is crucial for the coordination and management of the program, as well as for curriculum development. A designated program director has been critical to coordinate all aspects of the program—from admissions to advising to placement—and to work directly with faculty colleagues, administrators, and students.

Students enrolling in the MSBA program have varied backgrounds, interests, and future goals. It is challenging to accommodate this degree of student variation in the curriculum, academic advising, and career services. The program director interacts with students personally throughout their enrollment in the program to understand their individual background and interests and advise their course selections and career preparation to help students achieve their personal goals. ■

## CONSULTANT'S CORNER

# Why Be an Independent Consultant?

Stephen Simon, P. Mean Consulting



**Stephen Simon** is a part-time independent statistical consultant and part-time faculty member in the department of biomedical and health informatics at the University of Missouri-Kansas City. He writes about statistics, evidence-based medicine, and research ethics at <http://blog.pmean.com>.

So, you want to be an independent statistical consultant? Hang out your shingle and start helping people who come your way? Give up all the security that comes with consulting within a larger organization?

Are you crazy?

Inside a large organization, you have a support network. You have a human resources department that can help you update your insurance coverage when you get married. You probably have access to an administrative assistant who can help you prepare expense reports. That large organization will support your professional development, paying your way to the continuing education course at the Joint Statistical Meetings.

I like to write books and articles, and I haven't figured out yet how to bill any of this work to a particular client. That's true in some large organizations as well, but many places do offer time and support for professional activities that are not directly tied to a particular client.

In a large organization, if you don't know how to run a mediation analysis, you can walk down the hall to a colleague's office to ask a few questions. You also don't have to go out and find customers, because your customers are down the hallway from you, as well.

At a larger organization, you will have a boss and, for all we like to gripe about bosses, they can often be a great benefit to your career. They review your work and make suggestions on how to do better. They pick the work assignments they think will help you grow and become more valuable to your organization. They counsel you when you have problems.

Most importantly, if you're part of a larger organization,

your paycheck and working hours stay constant during busy and quiet times. In contrast, it's feast or famine in the world of independent consulting.

As an independent consultant, you end up doing a lot that isn't really statistical in nature and may take you outside your comfort zone. I work with an accountant, but I've had to learn a lot more about accounting than I expected to. I'm the sort of person who, if the amount in your checkbook register is within a hundred dollars of what the bank says you have, thinks the difference must be sampling error.

It's not just accounting. I pay someone to do my taxes, but when I became an independent consultant, the amount of paperwork I had to pull together for him by April 15 tripled.

You can get legal advice on the best type of business entity to set up, but this is your business, so you will still need to understand the fundamental differences between a sole proprietorship, limited liability corporation, S corporation, and C corporation. Even if your lawyer reviews your contracts, you will end up reading them in detail before you sign off.

Most importantly, you don't have an organization that finds work for you. So, if you don't market yourself properly, you won't have any clients, you won't make any money, and you will starve to death.

And yet, if you're the right person, you'd be crazy not to consider a career as an independent consultant. When you are your own business, you have a level of control that is liberating. You don't like a particular client? You have the option of just walking away. It's a loss of income,

for sure, but some clients are not worth any amount of income. If you try to walk away from a client at a larger organization, your boss needs to okay it first. Nine times out of 10, you will get so much grief about not being a "team player" that it won't be worth it.

Independent consulting is indeed spread irregularly, but even during busy times, you still have a lot of control over when and where you do your work. That was one of the biggest attractions for me. I have the option of going on field trips with my son and attending all of his track meets. I can be home with him when he's sick and take him to all his doctor's appointments. And when he sleeps until 2 p.m. on weekends, that's when I get much of my work done.

As an independent consultant, you do have to pay for your own continuing education, but the nice thing (beyond it being a tax deduction) is that you don't have to justify to anyone other than yourself that it's about time you learned how to run all these new Bayesian models.

That support network in a larger organization? It's not always there, to be quite honest, and you can build your own support network as an independent consultant. I volunteered to step in as president of the Kansas City R Users Group, and beyond the exposure and the number of new clients it has brought me, the other members of this group have been invaluable resources for things like version control software, data mining, and text analytics.

Independent consulting is not a job for the timid. But if you like being in control, it's the best job in the world. ■

## PASTIMES OF STATISTICIANS

# What Does Susan Hilsenbeck Do When She Is Not Being a Statistician?



Susan Hilsenbeck scuba dives.

## Who are you, and what is your statistics position?

My name is Susan Hilsenbeck, and I am a professor of medicine and the leader of the Biostatistics and Informatics Shared Resource in the Dan L. Duncan Comprehensive Cancer Center at Baylor College of Medicine in Houston, Texas. I spend most of my time working collaboratively with investigators on cancer research.

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

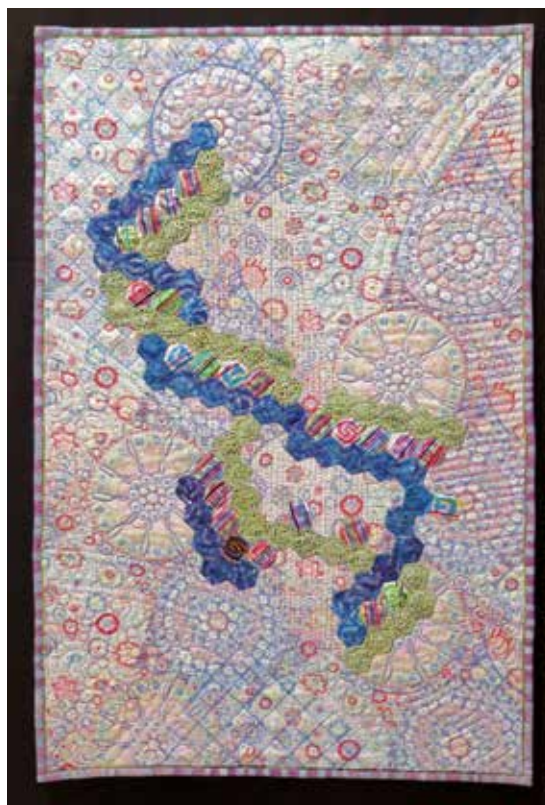
When I am not working as a biostatistician, I like to scuba dive and I like to fish, but most of all I like to quilt.

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

I've been quilting on and off since 1982, which means I started shortly after the 'quilt renaissance' of the 1970s. I got started because I watched a program on PBS and I wanted to make a present for a friend having a baby. Even for my first quilt, I aimed for something original, although I am a strong believer in mastering good technique and then branching out to make it your own.

I work pretty slowly and savor every aspect of the process. I've made very few bed-sized quilts and focus instead on baby-sized and wall art quilts.

One of the things I love about quilts is how the gift of a quilt expresses love and regard. The



Susan Hilsenbeck included a DNA molecule applique in this quilt she designed.



Hilsenbeck

experience of making a group quilt is especially fun and can help build bonds of friendship. Over the last 17 years, since joining Baylor, my co-workers and I have made more than 30 lap/crib-sized group quilts to celebrate life events like babies, marriages, retirements, etc. The group quilts are usually more whimsical in style, while my solo quilts are more on the experimental and art side (or at least I like to think so).

The thing I like best about quilting—as a mode of expression—is the blend of analysis/engineering to figure how to put something together; the physical skill needed to execute the design; and the freer, artistic side of design, composition, color, etc. It seems like the perfect mix for all sides of my brain. There is also something incredibly relaxing and centering about spending a couple of hours focused on stitching. I keep at it because there is always more to learn and the possibilities are endless. ■

### MORE ONLINE

To view some of Hilsenbeck's work, visit <https://susieturn.blogspot.com>.



STATtr@k

# Career Success in the Federal Government

Dionne Price



**Dionne Price** is the director of the Division of Biometrics IV, Office of Biostatistics, Office of Translational Sciences, Center for Drug Evaluation and Research, U.S. Food and Drug Administration. She holds an MS in biostatistics from The University of North Carolina at Chapel Hill and a PhD in biostatistics from Emory University.

Throughout my education, I forged ahead with the intent of becoming a professor. However, as graduation from my doctoral program neared, I listened to the advice of many who recommended I consider all options before making a final decision regarding where I would begin my career as a biostatistician. Thus, I set out on a number of interviews across all sectors, including the federal government.

I vividly remember meeting representatives from the U.S. Food and Drug Administration (FDA) at the Spring Meeting of the Eastern North American Region (ENAR) of the International Biometric Society. While talking to FDA representatives, I quickly realized I had not been fully aware of the vital role of statisticians at the FDA. I was subsequently invited for an onsite interview, where I learned more about the FDA mission and talked to statisticians at various stages of their careers about their day-to-day responsibilities.

The opportunity to directly affect public health daily left an undeniable impression on me. Although I had not anticipated employment in the federal sector, the job of an FDA statistical reviewer within the Center for Drug Evaluation and Research appeared to be a great fit for me. The position allowed me to apply my training and skills in a collaborative environment while also providing me opportunities to teach and conduct research. I happily accepted the job offer, and I have never looked back.

I have remained at the FDA throughout my career. Why, you ask? The answer is rather simple. I enjoy my job and feel a sense of pride knowing the work makes a difference in the lives of countless people.

Although agencies have been proactive in promoting the meaningful, yet challenging, work of federal statisticians, there still remains less familiarity with the wealth of opportunities for statisticians within the federal workforce. I am most familiar with the FDA, but there are a number of agencies that employ statisticians, including the National Institutes of Health, Centers for Disease Control and Prevention, Environmental Protection Agency, Bureau of Labor Statistics, and Census Bureau, just to name a few. Statisticians at these agencies support a clearly defined mission, influence decisions, and collaborate with multidisciplinary teams regularly. I frequently field questions about attaining a job within the federal government and strategies for a successful federal career. Below, I offer a few comments on these areas.

Federal agencies are often hiring and advertise vacancies in *Amstat News*. Thus, a good starting point for a job search is to peruse the employment opportunities here. If the employment announcement includes an email address to send questions to, do not hesitate to make direct contact to learn more about the position. I also recommend using the placement services at professional meetings such as the ENAR Spring Meeting and Joint Statistical Meetings.

Federal jobs are unique in that many potential employees will peruse USAJOBS.gov. This is a great resource and often a required tool for applying for a federal job, but I always recommend networking and making a personal contact prior to applying.

A frequently asked question pertains to the ability of federal

government agencies to hire non-citizens. A few agencies have the ability to hire non-citizens. If in doubt about hiring practices within an agency, inquire.

Another frequently asked question is the needed educational qualifications for a federal position. The answer will vary by agency. Currently, the FDA employs statisticians with MS and PhD degrees.

Once you enter the federal workforce, you undoubtedly will want to be successful. For the 2016 Women in Statistics and Data Science Conference, I presented a roadmap to success in the federal government. The key components of the roadmap are as follows:

## Recognize the Mission

Initially, familiarize yourself with the mission of the agency. As an example, the mission of the FDA is to protect and promote the health of the American public through the regulation of various products. Moreover, the mission of the Office of Biostatistics within the Center for Drug Evaluation and Research is to provide internal and external stakeholders with statistical leadership, expertise, and advice to foster the expeditious development of safe and effective drugs and therapeutic biologics for the American people. The Office of Biostatistics protects the public health by applying statistical approaches for monitoring the effectiveness and safety of marketed drugs and therapeutic biologic products. My colleagues and I truly believe in the mission, and for many, this belief is what motivates us to do our jobs with excellence, to go the extra mile, and to continue to develop our skills for the greater good.

## Understand the Job

When I accepted the job as a statistical reviewer at the FDA, I relied on my conversations during my onsite interview to inform me of what the job would entail. However, once I was an employee, I set out to truly understand the expectations of the position. For example, as a statistical reviewer, some of my responsibilities included reviewing the statistical aspects of the drug development process and drug applications, providing the statistical perspective on FDA policies and guidance documents, and conducting research on statistical topics pertinent to the mission.

## Identify a Mentor or Mentors

Students undoubtedly are informed about the value of mentors when in school. However, mentors actually serve as valuable “guides” throughout your career. A mentor can provide advice about navigating a federal agency, the do’s and don’ts of the job, and tips to ensure your professional development. Some agencies offer formal mentorship programs. Remember, there have been others who have chartered a course to a successful government career, and their wisdom may prove invaluable.

## Understand Expectations and Your Performance Evaluation

Within the federal government, performance is formally evaluated yearly. The evaluation process should serve as a mechanism to understand expectations of the position and a conduit to goal setting, performance feedback, and performance measurement.

## Recognize Pathways for Development and Growth

Career development is a lifelong process. Federal agencies provide resources to assist in

enhancing and expanding skills. These resources may come in the form of training classes, mentorship programs, invited speakers, or opportunities to attend and present at professional conferences. Agencies provide the resources, but employees should have a level of self-motivation to take advantage of and seek opportunities that will provide career development and advancement.

## Be Open to Modifying Your Goals

In pharmaceutical drug development, there is often mention of adaptive designs. These are designs that prospectively plan to adapt some aspect of a clinical trial. Careers are like adaptive designs; there are times when it may be beneficial to adapt or modify your goals. As you develop and grow in your career, you may find that your interests change or you may be exposed to an opportunity that was not originally among your goals. Modifications of your goals can often lead to an even more rewarding career than originally planned.

## Take Advantage of Opportunities

Although I can only vaguely recollect the movie “Dead Poet’s Society,” there is one line that has remained with me: “Carpe Diem” or “Seize the Day.” My personal translation of this has been to seize opportunities as they come along. Opportunities will often abound within federal agencies and come in various forms. Some will be exciting and others not, but, most often, there is value in the opportunity.

## Network

Most sectors recognize the value of networking, and the federal government is no different. According to the *Harvard Business Review* (May 2016, pages 104–107), research has shown that professional networks lead to more

opportunities, broader and deeper knowledge, and improved capacity to innovate. Your network will often begin while in school and expand as you go throughout your career.

I have found that becoming involved in professional organizations can serve as an enjoyable mechanism to grow your network. You may wonder how federal statisticians use networks. As an example, the FDA occasionally convenes a panel of external experts to provide advice on challenging or novel drug applications. We often use our professional network to identify statisticians to serve on these committees.

## Develop and Appreciate Work/Life Balance

Federal agencies recognize that employees who have a balance between work and personal life tend to be happy and, consequently, better employees. Hence, having a balance is encouraged, and there are various programs to assist employees with achieving balance. Of course, balance is certainly desirable among many federal employees who work and reside in the Washington metropolitan area, an area rich in museums, national landmarks, noteworthy dining, sports franchises, and the list goes on.

For me, a career in the federal government has been a rewarding experience. Statisticians answer important, often life-altering, questions that affect the public. Answers to the questions may be derived from some of your favorite courses, or you may have to develop an innovative approach to move science forward. Contrary to the belief of some, statisticians within federal agencies are not simply number crunchers. They analyze and interpret complex data using state-of-the-art methodologies. If you are looking for an exciting, rewarding, impacting career, consider all your options, including the federal government. The roadmap to career success begins with you (... in the federal workforce). ■



# STATISTICS

SUPPORTING THE TEACHING AND LEARNING OF STATISTICS

## Popular Resource for Teachers Now Online

“Does anyone have the databank for the STATLAB textbook on floppy disk for a micro-computer?”

This was a question posed in the September 1982 issue of the *Statistics Teacher Network* newsletter. A lot has changed since then, including—with the newest issue—the name and format. What remains the same is the emphasis on supporting statistics teachers.

“*STN* began as a paper newsletter mailed out, and then transformed into an electronic newsletter as a PDF,” said longtime *STN* editor Angela Walmsley. “Now, we are really moving forward in this new dynamic web presence, which combines the content of *STN* and *STEW* lessons into one place to find all usable resources for statistics teaching.”

This new web presence is called *Statistics Teacher (ST)*, and Walmsley will serve as co-editor. The online magazine will bring



together resources from the American Statistical Association and National Council of Teachers of Mathematics (NCTM), with ASA K–12 Statistical Ambassador Christine Franklin serving as managing editor. The ASA/NCTM Joint Committee on Curriculum in Statistics and Probability will continue to provide leadership for the publication.

“We felt this new look and name was more relevant to our audience,” said Walmsley. “I love the fact that a teacher of any grade level who is teaching statistics can come to this site for resources. It’s kind of like a ‘one-stop shop’ for statistics teachers of levels K–12 plus.”

*ST* will continue to provide articles about successful classroom practice and announcements

# TEACHER

about professional development opportunities. It will also continue to help connect K–12 educators across the country.

New features will include columns about technology and assessment and access to ASA/NCTM publications such as *Bridging the Gap* and *Making Sense of Statistical Studies*.

*Statistics Teacher* will also better incorporate the peer-reviewed *Statistics Education Web* (STEW) lesson plans and make it easier for educators to search for content by topic, grade level, or activity.

“Through combining several previous publication outlets into one central place, we will be able to make excellent articles and lesson plans accessible to a much wider audience,” says Walmsley’s counterpart, *ST* co-editor Hollylynne Lee. “I am proud to be part of the launch of this important contribution.”

*Statistics Teacher* will follow *STN*’s fall, winter, and spring publication calendar. Prospective authors are encouraged to contact the editorial team at [st@amstat.org](mailto:st@amstat.org) with questions or ideas for articles. ■

## Check Out the STN Archives

You can find your favorite *STN* content by clicking on the “Articles Archive” button on the right sidebar of *Statistics Teacher*.

To kick off this new era, we thought it would be fun to share a problem from the archives: *STN* #28 from February 1992.

The problem: “Suppose there are 7 audio tapes, each of which contains 10 songs. A tape player can be set to randomly choose songs from any of the 7 tapes and play through all the songs exactly once. What is the probability that the first 10 randomly selected songs will include at least 1 song from each of the 7 tapes?”

According to the problem statement, this was constructed by a talented high-school student.

In a later issue of *STN*, four people were identified as having submitted correct solutions—one of which came from ASA Executive Director Ron Wasserstein. Ron is available to explain to students what a tape player is!

Send your solution to [st@amstat.org](mailto:st@amstat.org).



Explore the new *Statistics Teacher* at [www.statisticteacher.org](http://www.statisticteacher.org). Send questions or comments to [st@amstat.org](mailto:st@amstat.org).

# CSP 2017 BRINGS STATISTICIANS FACE TO FACE



Bei-Hung Chang of the University of Massachusetts Medical Center presents her poster at the Opening Mixer February 23, 2017.

Moon Jung Cho, Bureau of Labor Statistics, CSP Program Chair

**MORE ONLINE**  
To learn about CSP 2018,  
visit [www2.amstat.org/  
meetings/csp/2018](http://www2.amstat.org/meetings/csp/2018).

Photos courtesy of  
Meg Ruyle/ASA

The 2017 Conference on Statistical Practice was held February 23–25. Four hundred fifty participants gathered at the Hyatt Regency Jacksonville Riverfront in Jacksonville, Florida.

The conference began with short courses and an opening mixer on Thursday. The following two days were filled with presentations, poster sessions, tutorials, and practical computing demonstrations. Keynote speaker David Banks set the tone of the conference with his presentation “Snakes and Ladders: Challenges in Forging a Career in Statistics.”

Unique to CSP is its theme, “Communication, Collaboration, and Career Development.” This theme provides participants with tools for leadership and external communication, with the goal of empowering participants to bring a positive impact to their organizations.

A new feature this year was a face-to-face task group charged with facilitating networking for conference attendees that allowed them to engage and connect with each other easily. Some of the face-to-face ideas included the following:

**SPEED NETWORKING:** We set up speed networking tables at the poster session Friday evening. Participants were assigned a table for a quick round of speed networking to meet and discuss the conference.

**COMMON AREA GATHERING SIGNS:** Gathering signs were placed in the common area to encourage participants to have meeting points prior to going for coffee, lunch, dinner, and other conference-related events.





Hadley Wickham answers a question from Sara Burns, the John Bartko Award winner, during his short course “Expressing Yourself with R” February 23, 2017, at CSP in Jacksonville, Florida.

**DINNER FOR CONSULTANTS:** There was a dinner for aspiring and practicing statistical consultants. The goal was to make personal and professional connections and get support from colleagues.

**THEME DINNERS:** Participants signed up for topic-based group dinners on Thursday and Friday evenings. The “Data for Good” theme dinner was led by David Corliss; “Misleading Graphs” by Naomi Robbins; and “Organizational Impact, Analytics Change, and Soft Skills for Success” by Terri Henderson.

**EVENING OUTING:** Around 30 people participated in a Jacksonville “Legends and Liars” walking tour led by a local historian and storyteller Friday evening.

As in previous years, we continued the CSP Mentoring Program, which was designed to establish a 1:1 mentoring relationship between junior and senior statistical practitioners and provide an opportunity to enhance personal and professional development goals.

By design, the CSP space is centered on a common area that holds the exhibitor booths, opening mixer, poster sessions, and breakfast and any refreshments. This physical arrangement, along with the small conference size, provides a great opportunity for continuous networking throughout the conference.

The CSP 2017 Best Student Poster Award went to Thomas Metzger of Virginia Tech for “Detecting Interaction in Two-Way Unreplicated Experiments via Bayesian Model Selection” and Carl Ganz of UCLA Center for Health Policy Research for “Using Shiny to Efficiently Process Survey Data.”

CSP 2018 will take place in Portland, Oregon. We hope to see you there! ■



Curtin Award winner Jami Jackson Mulgrave presents her poster at the Opening Mixer February 23, 2017.



David Banks gives the keynote address at CSP 2017 in Jacksonville, Florida, February 24, 2017.

The U.S. Department of Agriculture's National Agricultural Statistics Service (NASS) recently inducted into its hall of fame **Richard D. Allen** and **Donald M. Bay**, two retired agency leaders whose impact continues to resonate today.

The NASS Hall of Fame honors individuals whose work at the agency has had a lasting impact on agricultural statistics and the service NASS provides. Those inducted exemplify integrity, honesty, and commitment to public service.

"These accomplishments are built on a solid foundation formed by earlier NASS employees. We are reminded frequently of their contributions and are honored to have the opportunity to recognize some of them via the NASS Hall of Fame," said NASS Administrator Hubert Hamer.

Allen was honored for leading with integrity and an unwavering desire to improve the quality and timeliness of agricultural statistics. As NASS historian and a compassionate

mentor, his legacy includes the countless statisticians he helped develop into exceptional stewards of agricultural statistics.

Bay was honored for producing significant and lasting changes to NASS' agricultural statistics program and organizational culture, including the transfer of the Census of Agriculture program from the U.S. Census Bureau to NASS. During a time of technological change, he skillfully maintained morale and implemented many efficiency measures.

To learn more about the NASS Hall of Fame, including how to submit a nomination, visit [www.nass.usda.gov/About\\_NASS/Hall\\_of\\_Fame](http://www.nass.usda.gov/About_NASS/Hall_of_Fame). ■

## Obituary Jim Dickey



Jim, in his office, 2005

Jim Dickey, the ASA's committees coordinator, passed away February 20. He was 63.

Jim came to the ASA in 1999 to assist the program director, Mary Fleming, in a number of projects, including cataloguing the ASA library and bringing the bound volumes of ASA journals up to date. Within a year, he took on the overall responsibility for the association's more than 50 committees and assisted the ASA's president-elect in making committee appointment and reappointments.

"Jim's role at the ASA was like Jim—quiet, but deep," said Ron Wasserstein, the ASA's executive director. "Coordinating committees sounds

unimportant until you realize that those committees are extensions of the ASA Board of Directors. Work that is essential to the mission of the ASA goes on in those committees. By seeing that they worked well, Jim contributed deeply to the mission of the association and to the quality of the experience of our volunteers. And on a personal level, I'll miss our hallway chats. Jim knew amazing background stories about movies and musicals."

In addition to enjoying movies and musicals, Jim loved cats, was an avid reader, and rode his bike to work nearly every day.

Jim once wrote that he thought of himself as Sir Humphrey Appleby on the British TV series *Yes, Minister*. Sir Humphrey—having been head of the civil service in the Ministry of Administrative Affairs for years—knew everything about the day-to-day workings of his department. Like Humphrey, Jim hoped he would be able to use his knowledge to help the ASA's members achieve their goals and make the system operate as smoothly and efficiently as possible.

Jim was preceded in death by his mother and father. He is survived by his brother, Bill, and Bill's wife, Theresa.

The Department of Planning, Development, and Research (DPDR) of the Ministry of Education in Brunei Darussalam organized a workshop on evidence-based decision making and meta-analysis with applications January 23–25, 2017, at the Rizqun International Hotel in Bandar Sri Begawan, Brunei.

**Shahjahan Khan**, professor of statistics at the University of Southern Queensland, presented the workshop.

The workshop emphasized the importance of being evidence-informed for the decision makers, especially the essence of the levels and quality of evidence including the design of studies. The systematic reviews, as opposed to narrative reviews, must avoid every kind of bias to make the systematic reviews and meta-analyses objective and reproducible.

To read more about the conference, visit "Government of Brunei Sponsors Workshop on Evidence-Based Decision Making, Meta-Analysis" at <http://magazine.amstat.org>. ■



# Student Chapter Hosts Counting Card Social

Krista Shuckerow, President of the Statistics Club at Florida International University



Photos courtesy of Florida International University



Members split into groups so they can play cards. Samuel Mirtil demonstrates an interactive card-counting system and participants collectively count according to the methods just learned.

Every semester, the Statistics Club at Florida International University (FIU) plans for a board member to host an event related to one of their favorite statistical topics. In February, club board member Samuel Mirtil hosted a “counting cards” social, which included an interactive workshop on how to count cards using probability and expected values.

After Mirtil demonstrated how to count cards, everyone put their new skill to the test in games of Blackjack. For their effort, demonstration participants walked away with water bottles and pins with the club logo. All attendees left with a deck of cards so they could continue practicing their card-counting skills.

Approximately 20 people attended, the club gained three new members, and—most importantly—everyone had lots of statistics-related fun. ■



Chapter members and guests enjoy food before the presentation.



Samuel Mirtil demonstrates an interactive card-counting system.

# sectionnews

## Biometrics

*Edited by Zheyu Wang, Biometrics Section Publications Officer*

Want to get more involved in the Biometrics Section? Interested in contributing articles to the Biometrics Section newsletter? Contact the section's publication officer, Zheyu Wang, at [wangzy@jhu.edu](mailto:wangzy@jhu.edu).

### JSM 2017 Program

The Biometrics Section will sponsor the following continuing education (CE) courses at the 2017 Joint Statistical Meetings in Baltimore:

#### Longitudinal and Incomplete Data

Instructor(s): Geert Molenberghs and Geert Verbeke

#### An Introduction to the Joint Modeling of Longitudinal and Survival Data, with Applications in R

Instructor(s): Dimitris Rizopoulos

#### Bayesian Designs for Phase I-II Clinical Trials

Instructor(s): Peter Thall and Ying Yuan

#### Regression Modeling Strategies

Instructor(s): Frank Harrell

#### Precision Medicine Through Optimal Treatment Regimes

Instructor(s): Eric Laber, Marie Davidian, Anastasios (Butch) Tsiatis, and Shannon Holloway

#### Statistical Analysis with Missing Data

Instructor(s): Roderick Little and Trivellore Raghunathan

#### Analysis of Categorical Data

Instructor(s): Christopher Bilder and Thomas Loughlin

To read about the 2017 section award winners and other Biometrics Section news, visit <http://magazine.amstat.org/blog/2017/03/01/biometrics-section-news-for-march-2>. ■

## Physical and Engineering Sciences

*Yili Hong, JSM Program Chair-Elect, and Ying Hung, SRC Program Chair*

The Physical and Engineering Sciences Section (SPES) is sponsoring the following two P.M. roundtable sessions at JSM 2017 in Baltimore:

### Design of Experiment for Big Data Era

*Dennis Lin, Pennsylvania State University*

Classical design of experiments is mainly for agricultural and industrial problems, which may not be appropriate for the Big Data era of today. We will first discuss what is new for Big Data-type problems and then talk about future directions for design of experiments for the new environment.

### Statistical Challenges and Opportunities with Remote Sensing Data

*Jon Hobbs, NASA Jet Propulsion Laboratory*

Remote sensing instruments can provide high-resolution and high-volume data to inform numerous physical and environmental processes. Typically, the quantities of interest—such as the composition of the Earth's or other planetary atmosphere—must be inferred from the information in satellite radiance spectra. The inference can often involve complex, nonlinear, computationally expensive physical models, so a variety of tools for uncertainty quantification is used. Understanding the sources of uncertainty can provide additional insight for the scientific applications that benefit from the use of satellite data. This discussion will address the trade-offs between making optimal inference and practical considerations such as data volume for global remote sensing efforts.

If you are interested in attending roundtables at JSM, registration is required.

### Spring Research Conference

The 24th IMS/ASA Spring Research Conference (SRC) on Statistics in Industry and Technology will take place May 17–19 at Rutgers University.

The purpose of SRC is to promote research in statistical methods that address problems in industry and technology and to stimulate interactions among statisticians, researchers in the application areas, and industrial practitioners. The conference has a history of more than two decades and has explored many interesting and important topics in research and applications.

Keynote speakers will be Vijay Nair of the University of Michigan and David Madigan of Columbia University. Xiao-Li Meng of Harvard University will speak at the conference banquet.

There are 20 invited sessions and four contributed sessions with topics such as design of experiments, modern computing, uncertainty quantification, computer experiments, recent advances in statistical learning, network sampling, data fusion, time series for business problems, experimental design and causal inference in high-tech companies, and methods on quality improvement and measurement system.

Program details and registration information are available at [www.stat.rutgers.edu/src2017](http://www.stat.rutgers.edu/src2017). ■

## Survey Research Methods

Despite the reputation of Twitter, it actually can serve as an effective tool for survey statisticians to communicate with each other. Therefore, we are pleased to announce that the Survey Research Methods Section is now alive on Twitter (@SRMSASA or <http://twitter.com/srmsasa>). Any current section officer is able to send a Twitter update from the section's official Twitter account.

## What's a Survey?

More than a dozen years ago, Fritz Scheuren led a group of survey experts in publishing the second edition of *What Is a Survey?* ([www.whatisasurvey.info/overview.htm](http://www.whatisasurvey.info/overview.htm)). Stas Kolenikov is looking for volunteers to update this booklet to reflect the fast-evolving survey practice and operation. If you are interested in volunteering for this project, contact Kolenikov or sent a Twitter message to @SRMSASA. ■

# Statistics: It's Essential



## JOINT STATISTICAL MEETINGS

### Key Dates for ATTENDEES

**May 1 11:00 a.m.**

Registration and housing open

**June 1**

Early registration deadline

**June 2 12:01 a.m. – June 29 11:59 p.m.**

Regular registration (increased fees apply)

**June 29 12:01 a.m. – July 20 11:59 p.m.**

Late Registration (increased fees apply)

**June 30**

Housing deadline

**July 29 – August 3**

2017 Joint Statistical Meetings



[www.amstat.org/meetings/jsm/2017](http://www.amstat.org/meetings/jsm/2017)



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

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

» Indicates events posted since the previous issue

## May

### »5–6—Neuro-Statistics: The Interface Between Neuroscience and Statistics, Minneapolis, Minnesota

For more information, visit [irsa.stat.umn.edu/session/neuro-statistics-interface-between-neuroscience-and-statistics](http://irsa.stat.umn.edu/session/neuro-statistics-interface-between-neuroscience-and-statistics) or contact Snigdhasu Chatterjee, 313 Ford Hall, Minneapolis, MN 55455; (612) 625-6505; [irsa@stat.umn.edu](mailto:irsa@stat.umn.edu).

### 5–7—International Conference on Statistics and Econometrics, Mahdia, Tunisia

For more information, visit [www.cisem2017.com](http://www.cisem2017.com) or contact Houda Ben Mhenni, Tunis, Tunisia, International 087, Tunisia; +216 50 719 680; [houdabenmhenni@gmail.com](mailto:houdabenmhenni@gmail.com).

### 5–7—The 5th Workshop on Biostatistics and Bioinformatics, Atlanta, Georgia

For details, visit [math.gsu.edu/~yichuan/2017Workshop](http://math.gsu.edu/~yichuan/2017Workshop) or contact Yichuan Zhao, 30 Pryor St., Department of Mathematics and Statistics, Atlanta, GA 30303; (404) 413-6446; [yichuan@gsu.edu](mailto:yichuan@gsu.edu).

### 15–17—ARS'17 International Workshop, Naples, Italy

For details, visit [www.ars17.unisa.it/index](http://www.ars17.unisa.it/index) or contact Maria Rosaria D'Esposito, Via Giovanni Paolo II, Fisciano (SA), International I-84084, Italy; (+39) 089962206; [mdesposi@unisa.it](mailto:mdesposi@unisa.it).

### 22–24—40th Annual Midwest Biopharmaceutical Statistics Workshop (MBSW), Muncie, Indiana

For details, visit [www.mbswonline.com](http://www.mbswonline.com) or contact Melvin Munsaka, One Takeda Parkway, Deerfield, IL 60015; (224) 554-2846; [melvin.munsaka@takeda.com](mailto:melvin.munsaka@takeda.com).

### 29—Workshop on Statistical Perspectives of Uncertainty Quantification, Atlanta, Georgia

For details, visit [pwp.gatech.edu/spuq-2017](http://pwp.gatech.edu/spuq-2017) or contact Roshan Joseph, Industrial and Systems Engineering, Atlanta, GA 30332-0205; (404) 894-0056; [roshan@gatech.edu](mailto:roshan@gatech.edu).

### »31–6/2—Statistical Analysis of Neural Data (SAND8), Pittsburgh, Pennsylvania

For details, visit [sand.stat.cmu.edu](http://sand.stat.cmu.edu) or contact Barbara Dorney, CNBC, Pittsburgh, PA 15122; (412) 268-6557; [dorney@cmu.edu](mailto:dorney@cmu.edu).

## June

### 5–7—14th Graybill Conference on Statistical Genetics and Genomics, Fort Collins, Colorado

For details, visit [graybill.wolpe2.natsci.colostate.edu](http://graybill.wolpe2.natsci.colostate.edu) or contact Wen Zhou, 208 Statistical Building, Colorado State University, Fort Collins, CO 80523; (970) 491-1306; [riczw@stat.colostate.edu](mailto:riczw@stat.colostate.edu).



**7–9—ISBIS 2017 - Statistics in Business Analytics, Yorktown Heights, New York**

For more information, visit [www.isbis2017.org](http://www.isbis2017.org) or contact ISBIS 2017, 1101 Kitchawan Road, Route 134, Yorktown Heights, NY 10598; (914) 945-1793; [isbis2017@gmail.com](mailto:isbis2017@gmail.com).

**9–10—Conference in Celebration of Jeremy Taylor's 60th Birthday, Ann Arbor, Michigan**

For more information, visit [sph.umich.edu/biostat/events/jeremy-taylor-event.html](http://sph.umich.edu/biostat/events/jeremy-taylor-event.html) or contact Menggang Yu, 600 Highland Ave., Madison, WI 53792; (608) 261-1988; [meyu@biostat.wisc.edu](mailto:meyu@biostat.wisc.edu).

**11–23—Summer Institute in Social-Science Genomics, Santa Barbara, California**

For details, visit [www.russellsage.org/summer-institute-social-science-genomics](http://www.russellsage.org/summer-institute-social-science-genomics) or contact Dan Benjamin, 312 Dauterive Hall, Los Angeles, CA 90089; (617) 548-8948; [RSF.Genomics.School@gmail.com](mailto:RSF.Genomics.School@gmail.com).

**13–15—2017 Quality and Productivity Research Conference, Storrs, Connecticut**

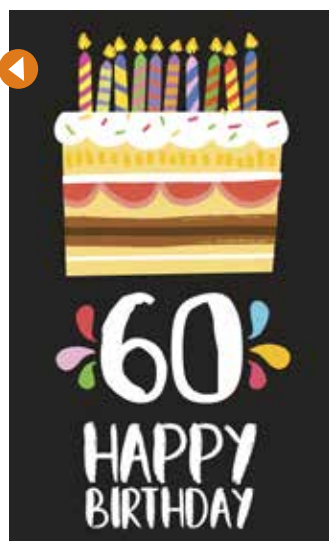
For details, visit [qprc2017.org](http://qprc2017.org) or contact Nalini Ravishanker, AUST 333, 215 Glenbrook Road, Storrs, CT 06269; (860) 486-4760; [nalini.ravishanker@uconn.edu](mailto:nalini.ravishanker@uconn.edu).

**»15–19—International Workshop on Perspectives on High-dimensional Data Analysis (HDDA-VII), Guanajuato**

Visit [hddavii.eventos.cimat.mx](http://hddavii.eventos.cimat.mx) or contact Lilia Leticia Ramirez, Calle Jalisco SN Col Valenciana, Guanajuato, International 36023, Mexico; +52 473 732 7155 x 4490; [leticia.ramirez@ciimat.mx](mailto:leticia.ramirez@ciimat.mx).

**18–7/1—Summer Institute in Computational Social Science, Princeton, New Jersey**

For details, visit [www.russellsage.org/summer-institute-computational-social-science](http://www.russellsage.org/summer-institute-computational-social-science) or contact Matt Salganik, 145 Wallace Hall, Princeton, NJ 08544; (609) 258-8867; [rsfcompsocsci@gmail.com](mailto:rsfcompsocsci@gmail.com).



**20–23—The 10th International Conference on Multiple Comparison Procedures, Riverside, California**

For details, visit [www.mcp-conference.org](http://www.mcp-conference.org) or contact Xinping Cui, 1337 Olmsted Hall, University of California at Riverside, Riverside, CA 92521; (951) 827-2563; [xinping.cui@ucr.edu](mailto:xinping.cui@ucr.edu).

**»26–30—10th Extreme Value Analysis Conference, Delft, The Netherlands**

For more information, visit [www.eva2017.nl](http://www.eva2017.nl) or contact John Einmahl, P.O. Box 90153, Tilburg, International 5000LE, Netherlands; +31 134668208.



## July

**2–7—IWSM 2017, Groningen, The Netherlands**

For more information, visit [iws2017.webhosting.rug.nl](http://iws2017.webhosting.rug.nl) or contact Marco Gzegorczyk, Nijenborgh 9, Groningen, International 9747 AG, Netherlands; +31503633985; [m.a.grzegorczyk@rug.nl](mailto:m.a.grzegorczyk@rug.nl).

**\*3–7—ICORS 2017, Wollongong, Australia**

For more information, visit [niasra.uow.edu.au/icors2017/index.html](http://niasra.uow.edu.au/icors2017/index.html) or contact Anica Damcevski, NIASRA, University of Wollongong, Wollongong, International 2522, Australia; 0061-2-4221-5435; [icors2017@uow.edu.au](mailto:icors2017@uow.edu.au).

**3–7—Research on Productivity, Trade, and Growth: Theory and Practice, Amsterdam, The Netherlands**

Visit [www.tinbergen.nl/tinbergen-institute-summer-school/research-productivity-trade-growth-theory-practice](http://www.tinbergen.nl/tinbergen-institute-summer-school/research-productivity-trade-growth-theory-practice) or contact Judith van Kronenburg, Gustav Mahlerplein 117, Amsterdam, International 1087 MS, The Netherlands; +31 (0)10 40 88919; [summerschool@tinbergen.nl](mailto:summerschool@tinbergen.nl).







9–13—38th Annual Conference of the International Society for Clinical Biostatistics, Vigo, Spain

For details, visit [jaco.bo.webs.uvigo.es/Flyer\\_ISCB38.pdf](http://jaco.bo.webs.uvigo.es/Flyer_ISCB38.pdf) or contact Jacobo de Uña Álvarez, University of Vigo, Department of Statistics and OR, Vigo, International 36310, Spain; 986812492; [jaco.bo@uvigo.es](mailto:jaco.bo@uvigo.es).

»10–22—Bocconi Summer School in Statistics and Probability: Statistical Causal Learning, Como, Italy

For more information, visit <http://spas.lakecomoschool.org> or contact Sonia Petrone, Via Roentgen 1, Milano, International 20123, Italy; +39 0258365602; [sonia.petrone@unibocconi.it](mailto:sonia.petrone@unibocconi.it).

10–28—2017 UW Biostatistics Summer Institutes, Seattle, Washington

For details, visit [www.biostat.washington.edu/suminst](http://www.biostat.washington.edu/suminst) or contact Deb Nelson, UW Tower 15T, Campus Box 359461, Seattle, WA 98195; (206) 685-9323; [uwbiostat@uw.edu](mailto:uwbiostat@uw.edu).

12–14—Data Science, Statistics, and Visualisation (DSSV 2017), Lisbon, Portugal

Visit [iasc-isi.org/dssv2017](http://iasc-isi.org/dssv2017) or contact Peter Filzmoser, Vienna University of Technology, Vienna, International 1040, Austria; +43 1 58801 10560; [P.Filzmoser@tuwien.ac.at](mailto:P.Filzmoser@tuwien.ac.at).

17–21—Introduction in Genome-Wide Data Analysis, Amsterdam, The Netherlands

For details, visit [www.tinbergen.nl/tinbergen-institute-summer-school/genome-wide-data-analysis](http://www.tinbergen.nl/tinbergen-institute-summer-school/genome-wide-data-analysis) or contact Judith van Kronenburg, Gustav Mahlerplein 117, Amsterdam, International 1087 MS, The Netherlands; +31 (0)10 40 88919; [summerschool@tinbergen.nl](mailto:summerschool@tinbergen.nl).

17–22—Crash Course in Experimental Economics, Amsterdam, The Netherlands

For more information, visit [www.tinbergen.nl/tinbergen-institute-summer-school/experimental-economics](http://www.tinbergen.nl/tinbergen-institute-summer-school/experimental-economics) or contact Judith van Kronenburg, Gustav Mahlerplein 117, Amsterdam, International 1087 MS, The Netherlands; +31 (0)10 40 88919; [summerschool@tinbergen.nl](mailto:summerschool@tinbergen.nl).

\*29–8/3—2017 Joint Statistical Meetings, Baltimore, Maryland

For more information, visit [www.amstat.org/meetings/jsm/2017](http://www.amstat.org/meetings/jsm/2017) or contact ASA Meetings, 732 N. Washington St., Alexandria, VA 22314; (703) 684-1221; [meetings@amstat.org](mailto:meetings@amstat.org).

## August

»3–5—23rd ISSAT International Conference on Reliability and Quality in Design (RQD 2017), Chicago, Illinois

For details, visit [issatconferences.org](http://issatconferences.org) or contact RQD 2017 Conference Secretary, P.O. Box 1504, Piscataway, IL 08855; [rqd@issatconferences.org](mailto:rqd@issatconferences.org).

8–12—XXVII International Symposium on Statistics, Medellín, Colombia

For more information, visit [simposioestadistica.unal.edu.co](http://simposioestadistica.unal.edu.co) or contact Carlos Eduardo Alonso Malaver, Calle 44 No. 45-67, Bogotá, International 111321, Colombia; 57-1 3165327; [simestadi\\_fcbog@unal.edu.co](mailto:simestadi_fcbog@unal.edu.co).

8–12—MiF2017, Kruger National Park, South Africa

For more information, visit [www.up.ac.za/mif2017](http://www.up.ac.za/mif2017) or contact Riaan de Jongh, 12 Bodensteinstreet, Potechefstroom, International 2531, South Africa; 27829050880; [riaan.dejongh@nwu.ac.za](mailto:riaan.dejongh@nwu.ac.za).

12–14—Second Workshop on Higher-Order Asymptotics and Post-Selection Inference (WHOA-PSI)<sup>2</sup>, St. Louis, Missouri

For more information, visit [www.math.wustl.edu/~kuffner/WHOA-PSI-2.html](http://www.math.wustl.edu/~kuffner/WHOA-PSI-2.html) or contact Todd Kuffner, 1 Brookings Dr., Campus Box 1146, St. Louis, MO 63130; [kuffner@wustl.edu](mailto:kuffner@wustl.edu).



## 28–9/1—CEN-ISBS Vienna 2017 Joint Conference on Biometrics & Biopharmaceutical Statistics, Vienna, Austria

For details, visit [www.cenisbs2017.org](http://www.cenisbs2017.org) or contact Alexandra Seppi, Mariannengasse 32, Vienna, International 1090, Austria; [cenisbs2017@aimgroup.eu](mailto:cenisbs2017@aimgroup.eu).



## September

### 21–24—Mountain Village Science Series (MOVISS 2017), Vorau, Austria

For details, visit [www.moviss.eu](http://www.moviss.eu) or contact Peter Filzmoser, Wiedner Hauptstr. 8-10, Vienna, International 1040, Austria; +43 1 58801 10560; [P.Filzmoser@tuwien.ac.at](mailto:P.Filzmoser@tuwien.ac.at).

### \*25–27—2017 ASA Biopharmaceutical Section Regulatory-Industry Statistics Workshop, Washington, DC

For more information, visit [ww2.amstat.org/meetings/biopharm-workshop/2017](http://ww2.amstat.org/meetings/biopharm-workshop/2017) or contact ASA Meetings, 732 North Washington St., Alexandria, VA 22314; (703) 684-1221, [meetings@amstat.org](mailto:meetings@amstat.org).

## October



### »\*4–6—Fall Technical Conference, Philadelphia, Pennsylvania

Visit [www.falltechnicalconference.org](http://www.falltechnicalconference.org) or contact Maria Weese, 800 E. High St., Oxford, OH 45056; (513) 529-0591; [weeseml@miamioh.edu](mailto:weeseml@miamioh.edu)

### \*11–13—ASA Symposium on Statistical Inference, Bethesda, Maryland

For more information, visit [ww2.amstat.org/meetings/ssi/2017](http://ww2.amstat.org/meetings/ssi/2017) or contact ASA Meetings, 732 North Washington St., Alexandria, VA 22314; (703) 684-1221; [meetings@amstat.org](mailto:meetings@amstat.org).

### »12–14—Design and Analysis of Experiments (DAE 2017) Conference, Los Angeles, California

For more information, visit [www.stat.ucla.edu/~hqxu/dae2017](http://www.stat.ucla.edu/~hqxu/dae2017) or contact Hongquan Xu, Department of Statistics, Los Angeles, CA 90095-1554; (310) 206-0035; [hqxu@stat.ucla.edu](mailto:hqxu@stat.ucla.edu).



## December

### \*3–8—73rd Annual Deming Conference on Applied Statistics, Atlantic City, New Jersey

Visit: [www.demingconference.com](http://www.demingconference.com) or contact Walter Young, 16 Harrow Circle, Wayne, PA 19087; (415) 819-8884; [demingchair@gmail.com](mailto:demingchair@gmail.com).

### \*28–29—International Conference 2017, Colombo, Sri Lanka

For details, visit [www.iappstat.lk/home/images/ICAS2017/IASSL\\_IC/index.html](http://www.iappstat.lk/home/images/ICAS2017/IASSL_IC/index.html) or contact Sarath Peiris, University of Moratuwa, Moratuwa, International 10400, Sri Lanka; 779895342; [sarathp@uom.lk](mailto:sarathp@uom.lk). ■

## 40th Annual Midwest Biopharmaceutical Statistics Workshop May 22–24, 2017

*Ball State University Alumni Center, Muncie, Indiana*

### PLENARY SESSION

Frank Rockhold (Duke University), "Open Access and Data Sharing: Where Are We on the Clinical Data Disclosure and Transparency Journey?"

Steve Wilson (FDA), "Biostatisticians and 21st-Century Drug Development: Staying Relevant and Looking Forward"

<http://mbswonline.com>

The registration fee includes a conference memento, Monday luncheon, Tuesday and Wednesday continental breakfasts and luncheons, Monday evening mixer, and Tuesday evening banquet at the Ball State Alumni Center.

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### Michigan

■ Assistant Professor Business Data Analytics. The marketing department invites applications for a full-time tenure-track position in business data analytics. Candidates need the ability to develop, deliver, and teach curricula for hands-on instruction integrated across multiple platforms. Required: PhD in statistics, applied statistics, or related field. Prior teaching experience or at least 2 years work experience. For a complete posting or to apply: <http://employment.ferris.edu>. Ferris State University is an AA/EOE.

### New York

■ Assistant Professor. Teach biostatistical, epidemiologic methods in medical, graduate schools. Mentor graduate students, residents, fellows in research projects. Initiate, participate, lead epidemiologic and biostatistical research studies. Liaise between clinical depts and institute. Perform literature search, identify research gap, write grants and manuscripts. PhD in biostatistics. CV to Debora Gomez, Icahn School of Medicine, One Gustave Levy Place, Box 1514, NY, NY 10029. Refer Job 2331024. EOE.

### Oklahoma

■ Department of Biostatistics and Epidemiology, College of Public Health, University of Oklahoma Health Sciences Center seeks two tenure-track assistant professors of biostatistics. PhD in biostatistics or related field and 12 months collaborative research gained during training or employment required. Graduate teaching experience desired. Preferred expertise: health services research, statistical genetics, or big data. Attach letter of interest, CV, names of three references: Daniel Zhao, ([daniel-zhao@ouhsc.edu](mailto:daniel-zhao@ouhsc.edu)). The University of Oklahoma is an Equal Opportunity/Affirmative Action Employer. Women, minorities, individuals with disabilities and protected veterans are encouraged to apply.

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.

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Also, look for job ads on the ASA website at [www.amstat.org/jobweb](http://www.amstat.org/jobweb).



USC University of  
Southern California

#### Biostatistics Faculty Job Description | Department of Preventive Medicine

The Department of Preventive Medicine of the Keck School of Medicine of USC is seeking an experienced biostatistician with an interest in a full-time position in education. The position is within the non-tenure track and will be at a rank appropriate for the experience of the faculty member. The department teaches a broad array of courses in biostatistics at levels ranging from undergraduates to advanced graduate students. Areas of focus for teaching include general biostatistical methods, data analysis with focus on both simple and multivariate models, application of biostatistical methods to complex data sets using a variety of software programs (e.g. SAS, Stata, SPSS, R), and probability and statistical theory. Teaching responsibilities would focus on courses in our graduate program in biostatistics (master's and Ph.D.), but could also include data-analysis courses within our MPH and undergraduate programs. There are opportunities to develop new classes in areas related to biostatistical methods or applications. While the emphasis is on education, limited time could be available for collaborative research.

Candidates should have a doctoral degree in biostatistics or a related field and teaching experience in one or more academic training programs. Research and consulting experience, particularly involving the application of biostatistical methods to the analysis of data from a health-related field, is desirable.

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## Texas

■ PhD biostatistician. Assistant/associate professor (tenure-track) to work in Division of Clinical and Translational Sciences (DCTS), within Internal Medicine at The University of Texas Health Science Center at Houston (UTHealth). Will work closely with a multidisciplinary team of biostatisticians/epidemiologists and clinicians at UTHealth. Should have experience with NIH-style grants and manuscripts. Interested candidates should refer to the job posting at [https://jobs.utb.tmc.edu/applicants/jsp/shared/position/JobDetails\\_css.jsp?postingId=504898](https://jobs.utb.tmc.edu/applicants/jsp/shared/position/JobDetails_css.jsp?postingId=504898) (Requisition #171261) The University of Texas Health Science Center at Houston is an EO/AA employer. M/F/D/V. This is a security sensitive position and thereby subject to Texas Education Code § 51.215. A background check will be required for the final candidate. ■



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# Duke UNIVERSITY

## PROFESSOR OF PRACTICE (MASTER'S PROGRAM ADMINISTRATOR) POSITION, DUKE UNIVERSITY

The Department of Statistical Science invites applications for an open rank position in the Professor of the Practice of Statistical Science track to begin in Fall 2017. This is a term renewable position. The appointee will serve as the full-time Master's Program Administrator (MPA) in the department for the Master's in Statistical Science (MSS) program. The MSS, launched in 2014 and already successful and visible, is a 2-year degree that provides a modern, comprehensive education in statistical theory, methods and computation, brings students into challenging, real-world research areas, and prepares students for positions in industry, government and other sectors as well as for PhD programs. Roughly half of the graduating MSS students move to R&D in industry, and about half to PhD programs. In concert with the graduate faculty leadership, the Master's Program Administrator will build on the existing foundation of the program to extend and develop partnerships in industry, government, non-profit, and other sectors, expanding internships and post-graduation job opportunities, as well collaborate with departmental faculty on aspects of the MSS administration and curriculum, and contribute to teaching and mentoring.

Full details of the department and the MSS program can be found at [www.stat.duke.edu](http://www.stat.duke.edu)

Preference will be given to candidates with post-PhD experience in R&D in relevant areas, track records in statistical research and education, and a strong interest in program development and administration with relevant experience in leadership and mentoring. To apply, submit a letter, curriculum vitae, personal statement of research and teaching and names/letters from three references via <https://academicjobsonline.org/ajo/jobs/8716>.

Enquiries can be emailed to [mpa-search@stat.duke.edu](mailto:mpa-search@stat.duke.edu). The application pool will remain open until the position is filled; screening will begin on February 1, 2017.

Duke University, located in Durham NC, is an Affirmative Action/Equal Opportunity Employer committed to providing employment opportunity without regard to an individual's age, color, disability, genetic information, gender, gender identity, national origin, race, religion, sexual orientation, or veteran status. Applications from women and minorities are strongly encouraged. Individuals in dual career couples are encouraged to visit the website on Duke's Advantages for Faculty, <http://provost.duke.edu/faculty/partner/>, for information on opportunities for dual career couples in the area and how the university can help.



## **Chair, Department of Biostatistics and Computational Biology Dana-Farber Cancer Institute**

### **Professor of Biostatistics Harvard T.H. Chan School of Public Health**

The Dana-Farber Cancer Institute and the Harvard T.H. Chan School of Public Health are seeking a distinguished scientist to serve as chair of the Department of Biostatistics and Computational Biology at the Dana-Farber Cancer Institute. The successful candidate will also be appointed as a tenured professor in the Department of Biostatistics at the Harvard T.H. Chan School of Public Health and will provide leadership in the cancer training and research program in the department.

The Department of Biostatistics and Computational Biology at the Dana-Farber Cancer Institute is an active department of 21 faculty, 12 doctoral research scientists, 21 masters-level statisticians, and 12 bioinformatics analysts/engineers conducting wide-ranging methodological research in biostatistics and computational biology and collaborative research in cancer. The department is home to the statistical centers for the International Breast Cancer Study Group and the ECOG-ACRIN Cooperative Group, coordinates the Biostatistics Core Facility for the Dana-Farber/Harvard Cancer Center, and is the principal site of the Centers for Cancer Computational Biology, Functional Cancer Epigenetics, and Center for Cancer Evolution and cBio Center. The department is closely affiliated with the Department of Biostatistics at the Harvard T.H. Chan School of Public Health, where many of the department's faculty hold primary appointments and participate in the graduate training program.

The successful candidate will be a visionary leader, internationally recognized as a pre-eminent scientist with an established record of scholarship, ideally in the area of cancer research. Candidates should hold a doctoral degree in a relevant field.

Please submit a letter of application, including a statement of current and future research interests, a curriculum vitae, and sample publications, online at <http://academicpositions.harvard.edu/postings/7145>. It would be helpful if you would also provide the names of senior scholars likely to be most knowledgeable about your field and about your work in particular. Please contact [facultyaffairs@hsph.harvard.edu](mailto:facultyaffairs@hsph.harvard.edu) with any questions.

Dana-Farber Cancer Institute and Harvard University seek to find, develop, promote, and retain the world's best scholars and are Affirmative Action/Equal Opportunity Employers. Applications from women and minority candidates are strongly encouraged.

The Department of Biostatistics and Computational Biology at Dana-Farber Cancer Institute provides a flexible working environment and provides a balance between work and life. Information on resources for career development and work/life balance at the Harvard Chan School can be found at: <https://hlc.harvard.edu/hlc-work-life-programs-at-a-glance/>.

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## Next month's question:

What/Who inspired  
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statistician?

Copy @AmstatNews  
on your response  
and use #lovestats  
#MathStatMonth

In celebration of Mathematics and Statistics Awareness Month, we asked our followers to share why they chose statistics. Here are a few of their answers:



**Andrew Byrne** Well, I was insignificant. Just a little p in a pod. I thought I would be more about teaching than research, but after sampling statistics, I began to skew toward quantification. Math had never really had much of an effect size on my life, but I began to notice a correlation between my use of numeric support and academic credibility- and before you can say "Bonferroni pizza" I was in for a correction! Practicing on my own data really increased my confidence level; and I even skipped Thanksgiving to run analyses.. imagine that, skipping Turkey for Tukey!! So now whenever I do things with data, there is a high probability that I will be graphing it, predicting its future behavior, even if I have to do it discretely. Sorry I had to include some puns. I can be mean like that.

**Elizabeth Pruitt** A very influential and entertaining epidemiologist teaching my undergrad biostatistics course introduced me to my as of yet undiscovered passion for statistics

**Vanesa Maribel Fernandez** Trying to analyze my own data ..... I discovered a new world!!

**Chrystin Gabryshak** Was a biology major. Aced a genetics quiz. Got called into the professor's office. He politely asked my math background, told him I was taking 300 level math classes for 'fun'. He then told me he had asked me in because I got 100%, even got a problem right that he had wrong...And the class average was a 55%....He ended up being my advisor, and I ended up being a double major. Wanted to go into bioinformatics, but ended up getting MS in Statistics.

**Cliff Claven** Statistics interests me because it was a way to use mathematical techniques to help people, whether it be in social sciences, manufacturing, the military, or any subject matter.



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