May 2015 • Issue #455

AMSTATNEWS

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

6000+ Statisticians Expected in Seattle This August

ALSO:

Negotiating a Statistical Career
Part 1: A JSM Panel Discussion

Cultural Values, Statistical Displays

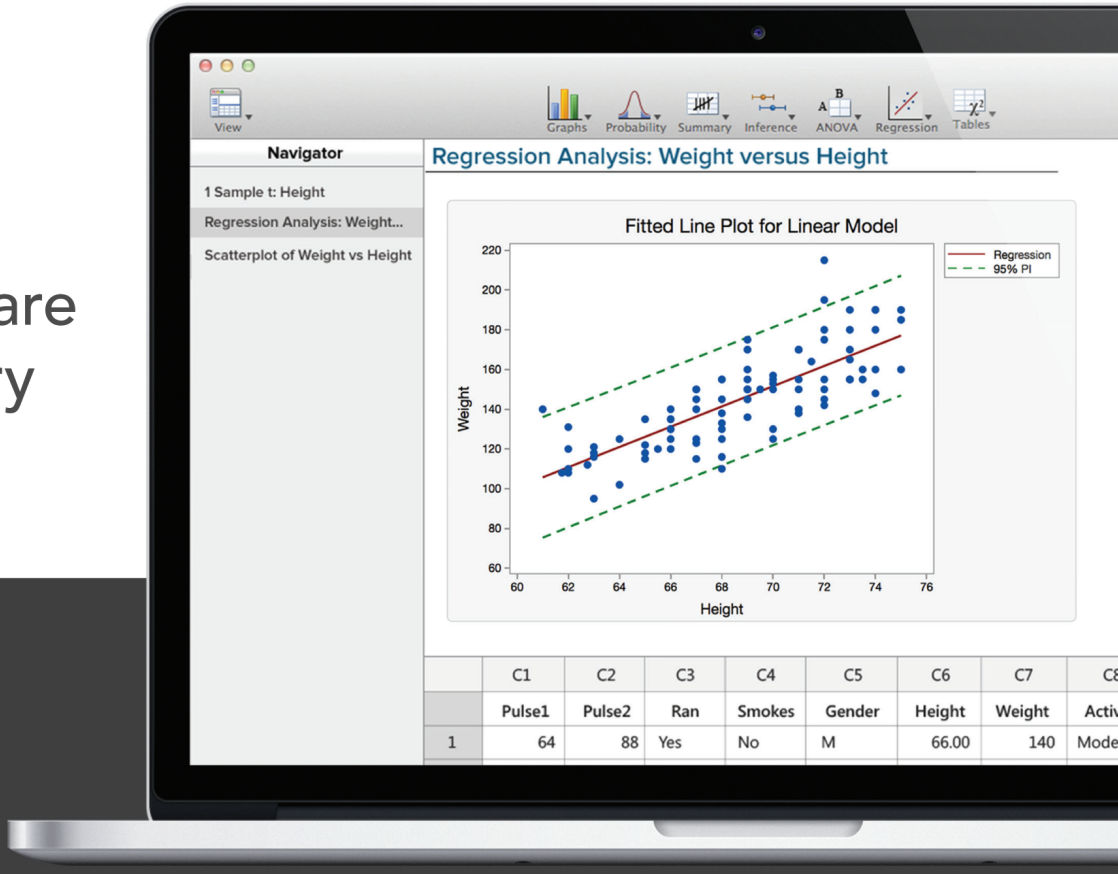
Announcing

Minitab Express™

available on

Mac and PC.

Statistical software for introductory statistics.



Download the free 30-day trial at

www.minitab.com/academic

Minitab®

AMSTATNEWS

MAY 2015 • ISSUE #455

Executive Director
Ron Wasserstein: *ron@amstat.org*

Associate Executive Director and Director of Operations
Stephen Porzio: *steve@amstat.org*

Director of Science Policy
Steve Pierson: *pierson@amstat.org*

Director of Education
Rebecca Nichols: *rebecca@amstat.org*

Managing Editor
Megan Murphy: *megan@amstat.org*

Production Coordinators/Graphic Designers
Sara Davidson: *sara@amstat.org*
Megan Ruyle: *meg@amstat.org*

Publications Coordinator
Val Nirala: *val@amstat.org*

Advertising Manager
Claudine Donovan: *claudine@amstat.org*

Contributing Staff Members
Amanda Conageski • Amy Farris • Rick Peterson • Kathleen Wert

Amstat News welcomes news items and letters from readers on matters of interest to the association and the profession. Address correspondence to Managing Editor, *Amstat News,* American Statistical Association, 732 North Washington Street, Alexandria VA 22314-1943 USA, or email *amstat@amstat.org*. Items must be received by the first day of the preceding month to ensure appearance in the next issue (for example, June 1 for the July issue). Material can be sent as a Microsoft Word document, PDF, or within an email. Articles will be edited for space. Accompanying artwork will be accepted in graphics file formats only (.jpg, etc.), minimum 300 dpi. No material in WordPerfect will be accepted.

Amstat News (ISSN 0163-9617) is published monthly by the American Statistical Association, 732 North Washington Street, Alexandria VA 22314-1943 USA. **Periodicals postage paid** at Alexandria, Virginia, and additional mailing offices. POSTMASTER: Send address changes to *Amstat News,* 732 North Washington Street, Alexandria VA 22314-1943 USA. Send Canadian address changes to APC, PO Box 503, RPO West Beaver Creek, Rich Hill, ON L4B 4R6. Annual subscriptions are $50 per year for nonmembers. *Amstat News* is the member publication of the ASA. For annual membership rates, see *www.amstat.org/join* or contact ASA Member Services at (888) 231-3473.

American Statistical Association
732 North Washington Street
Alexandria, VA 22314–1943 USA
(703) 684–1221 • FAX: (703) 684-2037
ASA GENERAL: *asainfo@amstat.org*
ADDRESS CHANGES: *addresschange@amstat.org*
AMSTAT EDITORIAL: *amstat@amstat.org*
ADVERTISING: *advertise@amstat.org*
WEBSITE: *http://magazine.amstat.org*

ASA
AMERICAN STATISTICAL ASSOCIATION

Promoting the Practice and Profession of Statistics®

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

features

3 President's Corner

5 Recognizing the ASA's Longtime Members

13 ASA Leaders Reminisce: Vincent P. Barabba

16 Negotiating a Statistical Career
Part 1: A JSM Panel Discussion

16 Call for Abstracts for 2016 Conference on New Data Linkages

17 Staff Spotlight: Amanda Conageski

columns

18 **MASTER'S NOTEBOOK**
Cultural Values, Statistical Displays

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

Crandell

Contributing Editor

Ian Crandell holds an MS in statistics from California State University, East Bay. He is a third-year PhD student in the Virginia Tech Department of Statistics. In his time as a collaborator at the Laboratory for Interdisciplinary Statistical Analysis (LISA), he has worked on 56 projects with university researchers. He worked under the auspices of LISA 2020 at Obafemi Awolowo University in Nigeria during the first half of 2015 to grow and sustain their nascent statistical collaboration lab.

20 **STAT*tr@k***
Two Principles for Building Your Networks

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

Wasserstein

Contributing Editor

Ron Wasserstein is the executive director of the American Statistical Association. Previously, he was vice president for academic affairs at Washburn University (2000–2007). Wasserstein earned his PhD and master's in statistics from Kansas State University and his BA in mathematics from Washburn University.

Online Articles

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

Longtime ASA member and biostatistics professor at the University of Pennsylvania, **Susan Ellenberg,** was profiled in the March issue of *The Economist*. During her career, Ellenberg has helped shape a discipline that owes as much to ethics and philosophy as it does to pure mathematics, notes the article. She has played a big part in improving the data-monitoring committees that now oversee virtually all clinical trials, helped establish standard practices for tracking dangerous treatments, and encouraged patient lobbies to find a voice in clinical testing. Read the interview on *The Economist* website at *http://econ.st/1HjtOMz*.

Rachel Schutt was nominated to the Forum of Young Global Leaders (YGL) recently. "The YGLs include the world's most pioneering, next-generation leaders who have developed in their journey to produce positive, tangible impacts in their countries, industries, and societies," said John Dutton, director and head of the YGL's community at the World Economic Forum. To learn more, visit YGL's website at *www.weforum.org*.

IN MEMORIAM Sadly, Janet Norwood; Shirrell de Leeuw and her husband, Roald Buhler; and Peter W. M. John all passed away this year. You can read these members' obituaries at *http://magazine.amstat.org*.

To read about other ASA members in the news, visit our Statisticians in the News web page at *www.amstat.org/newsroom/statisticiansinthenews.cfm*.

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

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

departments

22 **meetings**

6000+ Statisticians Expected in Seattle This August

- Featured Speakers
- The Imposteriors to Play at JSM Dance Party
- Don't Let What Happens at JSM Stay at JSM! *How to get the most out of your first Joint Statistical Meetings*
- Typical Tourist or Savvy Seattleite? The Choice Is Yours

August 8–13 JSM2015 Seattle

34 **statistician's view**
In Response to 'Statistics as a Science, Not an Art: The Way to Survive in Data Science' by Mark van der Laan

Response to Letters by Michael Lavine and Christopher Tong

member news

38 Section • Chapter • Committee News

43 Professional Opportunities

Follow us on Twitter
@AmstatNews

Join the ASA Community
http://community.amstat.org/home

Like us on Facebook
www.facebook.com/AmstatNews

Follow us on Instagram
www.instagram.com/AmstatNews

Consider Being a JSM DOCENT

At JSM 2014 in Boston, you may have noticed a few of our attendees donning maroon "JSM DOCENT" ribbons. With JSM 2015 in Seattle around the corner, I thought I would follow up on this initiative. I was fortunate enough to sit down with Mary Kwasny, the board's third-year Council of Chapters representative who led the pilot docent program on my behalf. She is an associate professor of preventive medicine in the Feinberg School of Medicine at Northwestern University, with an ScD from Harvard.

I have been told, but personally cannot remember, there was a time when the ASA organized volunteers at JSM to help welcome and assist first-time attendees. We continue to hold the First-Time Attendee Orientation and Reception on Sunday evening of the conference. Given how large JSM has grown and how many first-time attendees we have had, approximately 1,500 in Boston last year, it seemed like a good idea to enlist previous attendees to answer newcomers' questions and offer assistance throughout the conference. Mary—with her talent, enthusiasm, and effervescence—was the ideal person to take on locating, training, and organizing these volunteers to serve first-time attendees!

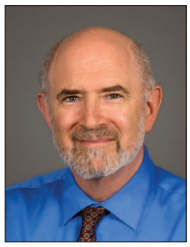
Many of our members might not be familiar with the term. What is a docent?

You will find docents in many museums or art galleries. They act as guides or educators for those institutions, and they typically do this on a volunteer basis. Although I was not very good in the classics, I did take Latin in high school, and I believe the term comes from the Latin docere, meaning to teach.

What's the purpose of the docent program at the JSM?

JSM is an incredibly large meeting, attracting approximately 6,000 statisticians in one location. Historically, there are at least 1,000 "first-timers" at the meeting as well, far exceeding the number I would have expected! I couldn't help but wonder how many of those first-timers may be a bit intimidated or not return to future JSMs because they, possibly, felt out of place. Volunteers are asked to serve as docents to be available to answer any questions about JSM first-timers (or anyone else) may have.

"Serving as a docent . . . helps members learn the ins and outs of JSM and working with the ASA staff."



David Morganstein

Mary Kwasny

Who benefits from this and how?

That is a great question. So many people have the potential to benefit! First, and most obviously, first-timers have an easy-to-identify point person to ask questions of. Imagine being lost in a small city and knowing that all you had to do was look for a person with a maroon ribbon who would answer any question! Second, as we are asking for younger ASA members to serve as docents (our more esteemed colleagues might intimidate a newcomer), they may be better able to remember what it was like the first time they attended the meetings and know best how to assist others. Third, this is the perfect opportunity to start volunteering for service within the profession. Fourth, serving as a docent also helps members learn the ins and outs of JSM and working with the ASA staff. Finally, I think this will benefit all JSM attendees. Someone who might not have returned to the meetings may make a connection with a docent. They might then return and serve as a docent themselves, and, who knows, maybe someday even serve as JSM program chair!

If you have attended three or more JSMs, consider becoming a 2015 JSM docent by following these **five easy steps:**

1. Make plans to attend JSM 2015.
2. Be willing to answer questions and help first-timers have a positive JSM experience.
3. Attend an orientation session on Sunday, August 9, and a thank you reception on Wednesday, August 12.
4. Attend JSM events and invite first-timers to join you.
5. Send your contact information to *JSMDocent@amstat.org* to receive more information.

Why did organizing this pilot docent program appeal to you?

Personally, I love JSM! Sure, smaller, "on topic" meetings, such as the Conference on Statistical Practice, are great, too. But at JSM, you can really expand the field of applications for specific methods, see what else is going on in areas where you may not have time to remain up to date, and connect and network with colleagues who work in your area of specialty. Apart from hoping to enhance the JSM experience, I think many of us are tempted to shy away from an overwhelming experience like JSM. Had I not attended it with seven of my classmates the first year, I may not have returned. I think back to all I experienced at subsequent JSMs, and I would have missed some truly incredible moments.

How did the experiment work at last summer's JSM?

As a pilot program, we learned a lot. Frankly, my probability training should have told me that in a sea of 6,000 people, trying to find one of 40 would be difficult! We started the pilot really not knowing how much or what kind of training the docents would need, or where they would be asked the most questions. We teamed up at the last minute with the Women's Caucus, which hosts the First-Time Attendee Orientation and Reception. That proved to be the best place for our docents to meet and greet the first-timers.

What was the feedback from the volunteers you recruited?

Most of the surveys we received back were positive. Obviously, a big issue was the lack of visibility. Boston 2014 was a small pilot program, and there was a lot to learn about organizing and how best to "use" the docents! Most of the docents felt that serving as a docent positively affected their experience at JSM, and a few were happy to have some of the first-timers recognize them at other, larger events like the President's Invited Address.

What did you learn that you might do differently this summer?

We definitely need more docents! We plan to reach out to the Women's Caucus earlier to see if we can offer our support, and spreading the word about the docent program will help raise awareness so people can sign up.

How can people volunteer to be a docent for this summer's JSM?

If anyone is interested or wants to know more, please send an email to *JSMdocent@amstat.org* to express your interest or ask questions. Anyone who has attended several JSMs in the past, is available to attend the First-Time Attendee Orientation and Reception, and would be comfortable answering questions throughout the conference is welcome to volunteer!

Once they send in an email, what will happen next, and what, if anything, will they be asked to do before JSM?

We will send you a docent guide to make sure you have access to the information someone may ask you. Then, pick up a docent ribbon at the registration desk and come to the docent orientation, to be held just before the first-timers orientation on Sunday at the meeting. This is intended to be "situational mentoring," so we ask very little except for a few hours of your time at JSM. Consider it; we can use your help!

Thanks for organizing this again at this year's JSM, Mary!

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 2015 in Seattle, Washington, please join us for a reception in your honor. If your name is not below and you believe it should be included, contact Amy Farris at *amy@amstat.org t*o correct your record.

50+ Years

Khazan C. Agrawal
Dennis J. Aigner
Jack Alanen
Carol H. Ammons
Sigmund J. Amster
Theodore W. Anderson
Gary M. Andrew
Charles E. Antle
Barry C. Arnold
Kenneth J. Arrow
Joseph R. Assenzo
Barbara A. Bailar
John C. Bailar
R. Clifton Bailey
John J. Bartko
Noel S. Bartlett
Glenn E. Bartsch
Asit P. Basu
Rex J. Bates
David L. Bayless
John J. Beauchamp
Donald F. Behan
Donald L. Bentley
Alan P. Berens
Mark L. Berenson
Robert H. Berk
Donald A. Berry
Elmer S. Biles
Saul Blumenthal
Colin R. Blyth
Thomas J. Boardman
Donald J. Bogue
Jack R. Borsting
Alan Bostrom
Kimiko O. Bowman
Norman Breslow
David R. Brillinger
Lyle D. Broemeling
Donna J. Brogan
Maurice C. Bryson
Charles R. Buncher
Norman Bush
John M. Chambers
Herman Chernoff
Janet E. Cherry
Robert P. Clickner
Arthur Cohen
Arthur Cohen
Ayala Cohen
Theodore Colton
William Jay Conover
John A. Cornell
Richard G. Cornell
John W. Cotton
David R. Cox
J. R. Crespo
Martin H. David
Herbert T. Davis
Miles Davis
John J. Deely
Kweku T. Degraft Johnson
Arthur P. Dempster
Frank T. Denton
Thomas E. Doerfler
Norman R. Draper
Satya D. Dubey
George T. Duncan
Arthur M. Dutton
Morris L. Eaton
Bradley Efron
Jonas H. Ellenberg
Robert C. Elston
William B. Fairley
William R. Fairweather
Kenneth H. Falter
Paul I. Feder
Charles Federspiel
Ivan P. Fellegi
Arlin M. Feyerherm
Stephen E. Fienberg
David John Finney
Richard L. Forstall
Alan B. Forsythe
Ralph F. Frankowski
Donald A. S. Fraser
Edward L. Frome
Carol Holly E. Fuchs
Wayne A. Fuller
Joseph L. Gastwirth
Charles E. Gates
Donald P. Gaver
David W. Gaylor
Edmund A. Gehan
Jane F. Gentleman
Thomas M. Gerig
Rudy A. Gideon
Dorothy M. Gilford
Dennis C. Gilliland
Phil D. Gilliland
Leon J. Gleser
Ramanathan Gnanadesikan
V. P. Godambe
Charles H. Goldsmith
Arnold F. Goodman
Leo A. Goodman
Donald Guthrie
Irwin Guttman
Gerald J. Hahn
Martin A. Hamilton
J. Wayne Hamman
Roy Dean Hardy
William L. Harkness
Kenneth Harwood
Victor Hasselblad
Roy E. Heatwole
Neil W. Henry
Jay Herson
Milton C. Heuston
John E. Hewett
William J. Hill
Bruce Hoadley
Vincent Hodgson
Paul W. Holland
J. Stuart Hunter
Boris Iglewicz
Hiroshi Ikeda
Arthur G. Itkin
Gudmund R. Iversen
Thomas B. Jabine
Laurence F. Jackson
Ronald L. Jacobson
Richard Hunn Jones
Joseph B. Kadane
Graham Kalton
Marvin J. Karson
Marvin A. Kastenbaum
Shriniwas K. Katti
Gordon M. Kaufman
Kathleen M. Keenan
C. D. Kemp
Jon R. Kettenring
Benjamin F. King
Elizabeth S. King-Sloan

John J. Kinney
Melville R. Klauber
Michael H. Klein
Gary G. Koch
Uwe Koehn
Mel Kollander
Lawrence L. Kupper
Thomas E. Kurtz
Michael H. Kutner
Ronald E. Kutscher
Peter A. (Tony) Lachenbruch
John C. Lambert
Eugene M. Laska
William J. Latzko
Ferdinand Lemus
Fred C. Leone
Eugene Levine
Robert A. Lew
Thomas M. Lewinson
Don O. Loftsgaarden
Edward MacNeal
Brian D. Macpherson
Albert Madansky
Clare M. Mahan
Richard Maisel
Henrick J. Malik
Colin L. Mallows
Charles R. Mann
Nancy R. Mann
Jack A. Marshall
Harry F. Martz
Robert A. McLean
Curtis Meinert
Edward L. Melnick
Peter F. Merenda
Paul W. Mielke
G. Arthur Mihram
Jerry L. Moreno
Carl N. Morris
Donald F. Morrison
John W. Morse
Janet M. Myhre
Jack Nadler
Charles B. Nam
Joseph I. Naus
Wayne B. Nelson
Marc Nerlove
John Neter
Mark J. Nicolich
W. Michael O'Fallon
Anthony M. Orlando
Bernard Ostle
Vernon E. Palmour
Louis A. Panek
Takis Papaioannou
Robert P. Parker
Emanuel Parzen
James L. Pate
Rusi K.N Patell
Ganapati P. Patil
Edward B. Perrin
Walter Piesch
S. R. S. Rao Poduri
Ralph D. Pollard
Richard F. Potthoff
John W. Pratt
S. James Press
Charles H. Proctor
Dana Quade
Joseph H. Rabin
J. N. K. Rao
Joan S. Reisch
Gladys H. Reynolds
Robert H. Riffenburgh
Larry J. Ringer
Naomi B. Robbins
Charles A. Rohde
Joan R. Rosenblatt
Paul F. Ross
Richard S. Ross
Robert A. Rutledge
Harold B. Sackrowitz
Charles B. Sampson
Innis G. Sande
Eberhard G. Schaich
Richard L. Scheaffer
Robert R. Scheer
David Schenker
J. Richard Schmid
Stanley Schor
Stanley L. Sclove
Donald T. Searls
Daniel G. Seigel
William Seltzer
Robert J. Serfling
Norman C. Severo
Babubhai V. Shah
William F. Shaw
Jacob S. Siegel
Monroe G. Sirken
Betty J. Skipper
Armand V. Smith
William Boyce Smith
Ronald D. Snee
Daniel L. Solomon
Edward J. Spar
Douglas E. Splitstone
John J. Stansbrey
George P. H. Styan
D. Derk Swain
Paul Switzer
Douglas B. Tang
Elliot A. Tanis
Leo J. Tick
Carlos E. Toro-Vizcarrondo
Bruce E. Trumbo
Chris P. Tsokos
N. Scott Urquhart
Constance van Eeden
Pearl A. Van Natta
James R. Veale
Harvey M. Wagner
Ray A. Waller
Robert C. Walls
James A. Walsh
William G. Warren
Steve Webb
Raymond L. Wilder
John W. Wilkinson
William H. Williams
Othmar W. Winkler
Robert L. Winkler
John J. Wiorkowski
John E. Witcher
Janet Wittes
John Harmon Wolfe
Donald E. Young
Calvin Zippin

45–49 Years

Abdelmonem A. Afifi
Robert A. Agnew
Alan Agresti
Murray A. Aitkin
Per A. T. Akersten
Arthur E. Albert
Mir Masoom Ali
Mukhtar M. Ali
J. Richard Alldredge
David M. Allen
Stan Altan
Philip J. Ambrosini
Jesse C. Arnold
Ersen Arseven
James N. Arvesen
Orley Ashenfelter
Corwin L. Atwood
Abdolrahman Azari
Charles K. Bayne
Gerald J. Beck
Laurel A. Beckett
Richard J. Beckman
Mary S. Beersman
Rudolf J. Beran
Kenneth N. Berk
U. Narayan Bhat
Peter J. Bickel
Christopher Bingham
William C. Blackwelder
Brent A. Blumenstein
Aroona S. Borpujari
Gordon J. Brackstone
Edwin L. Bradley
Gary L. Brager
William M. Brelsford
Robert L. Brennan
Dwight B. Brock
Mark Brown
John A. Burkart
Kenneth P. Burnham
Patricia L. Busk
Margaret D. Carroll
Walter H. Carter
Edwin H. Chen
Joseph J. Chmiel
Lee-Jay Cho
Domenic V. Cicchetti
William S. Cleveland
Jerry L. Coffey
Guy M. Cohen
Stanley H. Cohen
Kimon J.E. Constas
Peter A. Cook
R. Dennis Cook
Lewis Coopersmith
Bradford R. Crain
John R. Crigler
David S. Crosby
Larry H. Crow
Jonathan D. Cryer
Ralph B. D'Agostino
Gerard E. Dallal
James M. Davenport
Robert L. Davis
Enrique de Alba
Timothy A. DeRouen
Susan J. Devlin
Jay L. Devore
Paula H. Diehr
W. Erwin Diewert
Dennis O. Dixon
Douglas M. Dunn
Francois A. Dupuis
Benjamin S. Duran
Danny Dyer

Longtime Members

Robert G. Easterling
Donald H. Ebbeler
Brenda Kay Edwards
David Elesh
Milton C. Fan
Walter Feibes
Alan H. Feiveson
Alan C. Fisher
Andrew J. Flatt
Jairus D. Flora
Sandra Forman
James W. Frane
Martin R. Frankel
Mark C. Fulcomer
Richard Gaines
A. Ronald Gallant
Daniel J. Gans
Fernando L. Garagorry
John A. Gaudiosi
Douglas O. Gause
Stephen L. George
Gauri L. Ghai
Prabhakar D. Ghangurde
Jean D. Gibbons
Edward J. Gilroy
John R. Gleason
T. F. Glover
Prem K. Goel
Judith D. Goldberg
Robert N. Goldman
Bernard S. Gorman
David M. Grether
William E. Griffiths
Richard F. Gunst
Robert E. Hale
Silas Halperin
Chien-Pai Han
R. Choudary Hanumara
Lynne B. Hare
David A. Harville
Larry D. Haugh
Robert M. Hauser
Douglas M. Hawkins
William F. Heiland
Karl W. Heiner
Ronald W. Helms
William G. Henderson
Robert W. Hertz
Agnes M. Herzberg
Myles Hollander
David W. Hosmer
David C. Howell
Paul B. Huber
William F. Hunt
Frank L. Hurley
Huynh Huynh
Peter B. Imrey
William G. Jackson
David Jacobson
Aridaman K. Jain
F. E. James
Sreenivasa Rao Jammalamadaka
J. D. Jobson
Dallas E. Johnson
Richard A. Johnson
Bruce Johnston
Karl G. Joreskog
John H. Kalbfleisch
John D. Kalbfleisch
Balvant K. Kale
William D. Kalsbeek
Howard S. Kaplon
Joseph D. Kasile
Myron J. Katzoff
Thomas Keefe
William J. Kennedy
Roger E. Kirk
David C. Korts
Mary Grace Kovar
Stephen L. Kozarich
Helena C. Kraemer
Richard J. Kryscio
Arabinda Kundu
Lynn Roy LaMotte
Kenneth C. Land
James M. Landwehr
Kinley Larntz
William D. Lawing
Jerald F. Lawless
Anthony James Lawrance
Kenneth D. Lawrence
Eun S. Lee
Russell V. Lenth
Yves Lepage
David Levine
Donald Lewin
David L. Libby
Samuel Litwin
Robert G. Lovell
James M. Lucas
Lars Lyberg
George W. Lynch
James R. Maar
Bruce E. Mackey
Helen Marcus-Roberts
Takashi Matsui
Clement J. Maurath
George P. McCabe
John I. McCool
James B. McDonald
Lyman L. McDonald
J. Thomas McEwen
Robert L. McKnight
Glen D. Meeden
Jeff B. Meeker
James I. Mellon
William L. Mietlowski
George A. Milliken
Satish Chandra Misra
Robert Mondschein
Douglas C. Montgomery
Billy J. Moore
David S. Moore
Effat A. Moussa
Govind S. Mudholkar
Gary M. Mullet
Thomas D. Murphy
Henry D. Muse
Patricia L. Nahas
Jun-mo Nam
Krishnan Namboodiri
Subhash C. Narula
Glenn L. Nelson
Anna B. Nevius
S. Edward Nevius
David S. Newman
Robert L. Obenchain
Peter C. O'Brien
Jerry L. Oglesby
Anthony R. Olsen
Richard A. Olshen
J. Keith Ord
Albert C. Ovedovitz
William J. Padgett
Darrel W. Parke
Leonard J. Parsons
Jon K. Peck
Roger C. Pfaffenberger
Eswar G. Phadia
Louis A. Pingel
Mike Pore
Stephen L. Portnoy
Ross L. Prentice
Philip J. Press
Bertram Price
Philip C. Prorok
Thomas W. Pullum
Madan L. Puri
David A. Pyne
J. G. Ramage
Calyampudi R. Rao
Carol K. Redmond
George F. Reed
Benjamin Reiser
Louise C. Remer
Hans Riedwyl
Richard D. Rippe
Bruce E. Rodda
Bernard Rosner
Donald C. Ross
Donald B. Rubin
Barbara J. Rutledge
Julia Sabella
Susan T. Sacks
David S. Salsburg
Francisco J. Samaniego
Douglas A. Samuelson
Patricia D. Saunders
James J. Schlesselman
Joyce A. Schlieter
James Schmeidler
William R. Schucany
Stuart Scott
Nell Sedransk
Jolayne W. Service
Jayaram Sethuraman
Nagambal D. Shah
Paul Shaman
Gary M. Shapiro
Iris M. Shimizu
James G. Shook
Robert H. Shumway
Jon J. Shuster
Moshe Sicron
Nozer D. Singpurwalla
Dennis E. Smith
Mitchell Snyder
F. Michael Speed
Randall K. Spoeri
M. K. Srirama
Muni S. Srivastava
Stephen M. Stigler
Jerrell T. Stracener
William E. Strawderman
Nariaki Sugiura
Moon W. Suh
Michael Sutherland
Judith M. Tanur
Aaron Tenenbein
Carol B. Thompson
James R. Thompson
Lowell H. Tomlinson
James Tonascia
Ram C. Tripathi
J. Richard Trout
Bruce W. Turnbull
Gerald van Belle
Willem R. Van Zwet
Lonnie C. Vance
Wayne F. Velicer
R. Lakshmi Vishnuvajjala
Kenneth W. Wachter
Sylvan Wallenstein
George H. Wang
Edward J. Wegman
Bruce S. Weir
Herbert I. Weisberg
Sanford Weisberg
Owen Whitby
George W. Williams
John Williams
Douglas A. Wolfe
Robert F. Woolson
Gooloo S. Wunderlich
Morty Yalovsky
Rita Zemach
Stuart O. Zimmerman

40–44 Years

Robert D. Abbott
Sandra C. Abbott
Bovas Abraham
Judith Abrams
Lee R. Abramson
C. J. Adcock
Frances J. Adox
Francis B. Alt
Alfred Jerry Anderson
Dallas W. Anderson
Robert J. Anderson
Sharon Anderson
Robert L. Andrews
Bengtung Ben Ang
Lawrence Annable
W. Tad Archambault
Steve Ascher
Taka Ashikaga
Anthony C. Atkinson
Agustin F. Ayuso
Saad T. Bakir
Vincent P. Barabba
William A. Barnett
John L. Barone
Michael P. Battaglia
Patricia C. Becker
Richard A. Becker
Robert B. Bendel
Roger L. Berger
Timothy M. Bergquist
James S. Bergum
Jose Miguel Bernardo
Ernst R. Berndt
David J. Bernklau
Bibhuti B. Bhattacharyya
Wayne F. Bialas
William T. Bielby
Paul P. Biemer
Lynne Billard
Richard A. Bilonick
Jeffrey B. Birch
David S. Birkes
Herbert L. Bishop
Richard M. Bittman
John A. Blessing
Peter Bloomfield
Harvey Blumberg
Lennart Bodin
Dan C. Boger
Robert J. Boik
James A. Bolognese
Dennis Boos
Marie V. Bousfield
Ellen F. Brewer
J. Michael Brick
David R. Bristol
Dean S. Bross
Rocco L. Brunelle
Shirrell Buhler
Richard K. Burdick
John M. Bushery
Lawrence S. Cahoon
Patrick J. Cantwell
Grant D. Capps
William L. Carlson
Raymond J. Carroll
Frank C. Castronova
John P. Chandler
Judith-Anne W. Chapman
Yogendra P. Chaubey
Raj S. Chhikara
Joan Sander Chmiel
Jai Won Choi
George W. Cobb
Timothy C. Coburn
Steven B. Cohen
James J. Colaianne
John R. Collins
Margaret D. Copenhaver
Thomas W. Copenhaver
Robert J. Costello
Brenda G. Cox
Giles L. Crane
Anne P. Cross
Andrew Joseph Cucchiara
William G. Cumberland
L. Adrienne Cupples
Robert D. Curley
Gary R. Cutter
Andrew I. Dale
Prithwis Dasgupta
Roberta W. Day
Michael L. Deaton
Pierre C. Delfiner
David L. DeMets
Lorraine Denby
Thomas F. Devlin
E. Jacquelin Dietz
David P. Doane
Allan P. Donner
Darryl J. Downing
Michele Dramaix-Wilmet
Janice L. Dubien
Dennis A. DuBose
Joseph W. Duncan
William D. Dupont
L. Marlin Eby
William F. Eddy
Janet D. Elashoff
Kathleen Louise Emery
Wil B. Emmert
Thomas W. Epps
Samuel M. Epstein
William H. Epstein
Eugene P. Ericksen
James W. Evans
David L. Farnsworth
Thomas B. Farver
Alan Fask
Robert E. Fay
John P. Fazio
Ronald S. Fecso
Martin Feuerman
David F. Findley
Nicholas I. Fisher
Allen I. Fleishman
Nancy Flournoy
Peter E. Fortini
Mary A. Foulkes
Janet F. Fowler
John D. Fox
Martin D. Fraser
Daniel H. Freeman
David Frontz
Barbara A. Gabianelli
Mitchell H. Gail
Edward J. Gainer
Stephen J. Ganocy
Turkan K. Gardenier
Edward E. Gbur
Alan E. Gelfand
Fredric C. Genter
Cynthia D. Gentillon
David E. Giles
Howard Seth Gitlow
Dennis R. Givens
Beth C. Gladen
Marcia A. Glauberman
Joseph Glaz
Richard F. Goldstein
James H. Goodnight
J. Douglas Gordon
Louis Gordon
Robert D. Gordon
Timothy A. Green
John Vic Grice
Susan Groshen
Marvin H. J. Gruber
Leslie S. Grunes
Joseph A. Guarnieri
Victor M. Guerrero
Shelby J. Haberman
Hermann Habermann
Timothy O. Haifley
David B. Hall
James L. Hall
Nancy R. Hall
Janet M. Hanley
Robert C. Hannum
David Hardison
Frank E. Harrell
Kenneth R. Hartmann
Ronald W. Hawkinson
Richard M. Heiberger
Lance K. Heilbrun
Thomas Herzog
James L. Hess
Eugene R. Heyman
James J. Higgins
Steven C. Hillmer
Klaus Hinkelmann
Susan M. Hinkins
Jerry L. Hintze
David C. Hoaglin
Raymond G. Hoffmann
Thomas P. Hogan
Theodore R. Holford
Alan Hopkins
Berne Martin Howard
Ina P. Howell
Elizabeth T. Huang
Lawrence J. Hubert
Marla L. Huddleston
Mark Hudes
Mohammad F. Huque
Dar-Shong Hwang
David N. Ikle
Duane M. Ilstrup
Ronald L. Iman
Alan J. Izenman
Allen E. Izu
Kirk A. Jackson
William E. Jackson
David Jaspen
Robert W. Jernigan
Clifford L. Johnson
Paulette M. Johnson
Gerald A. Joireman
Ian T. Jolliffe
Paul K. Jones
David C. Jordan
Henry D. Kahn
Theodore G. Karrison
Daniel Kasprzyk
Richard W. Katz
Robert M. Katz
Roswitha E. Kelly
Sheryl F. Kelsey
James L. Kenkel
James L. Kepner
Andre I. Khuri
David L. Kimble
Ignatius A. Kinsella
Nancy J. Kirkendall
Rudolf G. Kittlitz
Beat Kleiner

Longtime Members

Stuart A. Klugman
Ralph L. Kodell
Kenneth J. Koehler
Kenneth J. Kopecky
Neal Koss
Abba M. Krieger
S. David Kriska
Robert Kushler
Alan H. Kvanli
John M. Lachin
Nan Laird
Carol J. Lancaster
J. Richard Landis
Per Lange
Nicolaas F. Laubscher
Philip T. Lavin
Sheila M. Lawrence
Johannes Ledolter
Kelvin K. Lee
Kerry L. Lee
Martin L. Lee
James D. Leeper
Stanley A. Lemeshow
Heryee H. Leong
James M. Lepkowski
Trudy J. Lerer
Martin L. Lesser
Marcia J. Levenstein
Bruce Levin
Charles Lewis
Shou-Hua Li
Walter S. Liggett
Lawrence I-Kuei Lin
Carol L. Link
Greta M. Ljung
Michael T. Longnecker
Thomas A. Louis
Milton W. Loyer
Jay H. Lubin
Donald M. Luery
James Lynch
Kathleen S. Madsen
Linda C. Malone
Charles F. Manski
Dennis R. Mar
Kanti V. Mardia
Michael J. Margreta
Mary A. Marion
David B. Marx
Donald L. Marx
Robert L. Mason
Frances J. Mather
Victor M. Matthews
LeRoy T. Mattson
Timothy A. Max
Margaret W. Maxfield
Scott E. Maxwell
Stephen A. McGuire
Joseph W. McKean
John D. McKenzie
Geoffrey J. McLachlan
Don L. McLeish
William Q. Meeker
Cyrus R. Mehta
Robert J. Meier
Gayle T. Meltesen
Roy Mendelssohn
Michael M. Meyer
Terry G. Meyer
Joel E. Michalek
Richard O. Michaud
Mary-Jane Mietlowski
John A. Miller
John Francis Monahan
Roderick Montgomery
Katherine L. Monti
John K. Moore
Thomas F. Moore
David R. Morganstein
Max D. Morris
Barbara G. Mroczkowski
Robb J. Muirhead
Leigh W. Murray
Wayne L. Myers
Elliott Nebenzahl
Reinhard Neck
Gary L. Neidert
James W. Neill
Margaret A. Nemeth
H. Joseph Newton
Kai Wang Ng
Earl Nordbrock
Julia A. Norton
Marija J. Norusis
El-Sayed E. Nour
David Oakes
Ralph G. O'Brien
Michael W. O"Donnell
Judith Rich O'Fallon
Patrick D. O'Meara
Bernard V. O'Neill
Terence John O'Neill
Leonard Oppenheimer
Joyce Orsini
Melvin L. Ott
Willis L. Owen
Maurice E. B. Owens
William S. Pan
Swamy A.V.B. Paravastu
Sung H. Park
Won J. Park
Van L. Parsons
Karl E. Peace
N. Shirlene Pearson
Raymond C. Peck
Peter H. Peskun
Arthur V. Peterson
A. John Petkau
Charles G. Pfeifer
John G. Phillips
Philip J. Pichotta
Linda Williams Pickle
Dale J. Poirier
William E. Pollard
Darwin H. Poritz
Frank J. Potter
Randall W. Potter
Dale L. Preston
Kevin Price
John N. Quiring
Alfred W. Rademaker
Philip H. Ramsey
Rose M. Ray
William J. Raynor
Kenneth J. Resser
Paula K. Roberson
Rosemary A. Roberts
Jeffrey A. Robinson
Frank W. Rockhold
Robert N. Rodriguez
Russell H. Roegner
John E. Rolph
Paul R. Rosenbaum
James L. Rosenberger
N. Phillip Ross
Roch Roy
Estelle Russek-Cohen
Carl T. Russell
Thomas P. Ryan
Thomas W. Sager
John P. Sall
William M. Sallas
Allan R. Sampson
Gilles F. M. Santini
Thomas J. Santner
Richard L. Sawyer
Patricia A. Scanlan
Nancy K. Schatz
Josef Schmee
Mildred E. Schmidt
John D. Schmitz
David A. Schoenfeld
Timothy L. Schofield
Friedrich W. Scholz
John H. Schuenemeyer
Donald J. Schuirmann
Eugene F. Schuster
Neil C. Schwertman
Alastair John Scott
William L. Seaver
Joseph Sedransk
Subrata K. Sen
Glenn R. Shafer
Juliet Popper Shaffer
Arvind K. Shah
Ronald E. Shiffler
Shingo Shirahata
Albert P. Shulte
Andrew F. Siegel
Richard S. Sigman
Jagbir Singh
Walter Sloboda
Robert D. Small
Martyn R. Smith
Murray H. Smith
William A. Sollecito
Dan J. Sommers
Bruce D. Spencer
Nancy L. Spruill
William M. Stanish
Richard M. Stanley
Robert R. Starbuck
David W. Stewart
Gerald R. Stewart
John A. Stewart
Allan Stewart-Oaten
Sandra S. Stinnett
Anne M. Stoddard
Robert L. Stout
Miron L. Straf
Donna F. Stroup
Perla Subbaiah
Richard A. Sundheim
Robert Sutherland
David A. Swanson
Gerald R. Swope
Ajit C. Tamhane
A. Cole Thies
Ronald A. Thisted
John M. Thomas
John H. Thompson
Steven F. Thomson
Jerome D. Toporek
Robert D. Tortora
Ishwari D. Tripathi
J.R. Roger Trudel
Kam-Wah Tsui
Alan R. Tupek
David L. Turner
Gregory W. Ulferts
Neil R. Ullman
Jessica M. Utts
Richard L. Valliant
George H. Van Amburg
Kerstin Vannman
Niels H. Veldhuijzen
Paul F. Velleman
Joseph S. Verducci
Hrishikesh D. Vinod
Hajime Wago
Joseph J. Walker
Katherine K. Wallman
Stephen D. Walter
Chao Wang
James F. Ward
Sophronia W. Ward
Herbert W. Ware
James H. Ware
Stanley Wasserman
William L. Weber
William E. Wecker
Thomas E. Wehrly
William W. S. Wei
Lynn Weidman

Daniel L. Weiner
K. Laurence Weldon
Jon August Wellner
Roy E. Welsch
Fredrick S. Whaley
James P. Whipple
Andrew A. White
David G. Whitmore
Roy W. Whitmore
Howard L. Wiener
Rand R. Wilcox
Leland Wilkinson
Andrew R. Willan
Jean F. Williams
Stephen R. Williams
William J. Wilson
Michael A. Wincek
Lawrence C. Wolfe
Kirk M. Wolter
Wayne A. Woodward
Tommy Wright
Marvin Yablon
Michael G. Yochmowitz
Sarah T. Young
Eric R. Ziegel
James R. zumBrunnen

35–39 Years

Dennis Aaron
John M. Abowd
Michael A. Adena
Dennis P. Affholter
Mohammad Ahsanullah
Donald R. Akin
Adelin I. Albert
James H. Albert
Jeanne M. Aldred
Robert W. Aldred
Melvin T. Alexander
Rich Allen
Paul D. Allison
Wendy L. Alvey
W. Gregory Alvord
Yasuo Amemiya
Keaven M. Anderson
Michael E. Andrew
Clifford W. Angstman
Thomas Arbutiski
Susanne Aref
Vincent C. Arena
Stephan Arndt
Arlene S. Ash
Tim Baer
Steven P. Bailey
Stephen P. Baker
James A. Baldwin
David L. Banks
Thomas A. Bass
Karin M. Bauer
Andrew Lewis Baughman
Eileen J. Beachell
Moraye B. Bear
Mark P. Becker
Jay H. Beder
Paula J. Beitler
Alexander E. Belinfante
Steven Belle
Michael E. Bellow
Julia L. Benson
Peter M. Bentler
James O. Berger
Eric J. Bergstralh
Catherine S. Berkey
Nancy Berman
Debra H. Bernstein
Charles C. Berry
James Calvin Berry
Robert H. Bigelow
Thomas E. Billings
Thomas R. Birkett
Jan F. Bjornstad
Mark M. Blanchard
David K. Blough
Douglas G. Bonett
David E. Booth
Richard C. Borden
Victor Marek Borun
H. Christine Bourquin
Robert D. Bowser
Michael N. Boyd
John E. Boyer
Nancy J. Boynton
Norman M. Bradburn
Mary-Lynn Brecht
James E. Breneman
Ron Brookmeyer
Roger L. Brown
Edward C. Bryant
Judith A. Buchino
Shelley B. Bull
Christine M. Bunck
Lawrence F. Burant
Thomas E. Burk
Harry F. Bushar
Thomas J. Bzik
Richard J. Caplan
Lynda T. Carlson
Arthur Carpenter
B. Thomas Carr
Daniel B. Carr
John F. Carter
Aki N. Caszatt
Deborah A. Cernauskas
Raymond L. Chambers
Amrut M. Champaneri
Promod K. Chandhok
Chen-Hsin Chen
Gina G. Chen
James J. Chen
Mon-Gy Chen
William W.S. Chen
Ching-Shui Cheng
Michael R. Chernick
Richard P. Chiacchierini
Yu-Kun Chiang
Vernon M. Chinchilli
Nanjamma Chinnappa
Paul C. Chiou
Ronald Christensen
Peter D. Christenson
Tin Chiu Chua
B. Christine Clark
Cynthia Z.F. Clark
Daren B. H. Cline
Gretchen A. Cloud
Avital Cnaan
Paul E. Coffman
Mark E. Cohen
Michael P. Cohen
Michael L. Cohen
Stephen H. Cohen
Salvatore V. Colucci
Charles F. Contant
Richard S. Conway
Bruce K. Cooil
Peyton J. Cook
Kennon R. Copeland
Charles D. Cowan
Lawrence H. Cox
John R. Crammer
Keith N. Crank
James A. Creiman
Noel A. Cressie
Douglas E. Critchlow
Leonard A. Cupingood
Estella Bee Dagum
Robin A. Darton
Marie Davidian
Bruce M. Davis
Charles S. Davis
Thomas M. Davis
Willis L. Davis
Thomas C. Dawe
Ree Dawson
Virginia A. de Wolf
Angela M. Dean
Michael R. Delozier
Richard A. Derrig
Wayne S. Desarbo
Jeanne A. Devin
Marie Diener-West
Ralph Digaetano
John E. Donmyer
Joseph R. Donovan
Gerald A. Dorfman
Gaylen W. Drape
Kevin Ward Drummey
Bonnie P. Dumas
Charles L. Dunn
Harold E. Dyck
Jean L. Dyer
Jeffrey H. Ebersole
Robert G. Edson
Don Edwards
Thomas Barry Edwards
Marlene J. Egger
Paul J. Elson
John D. Emerson
Curtis S. Engelhard
Patricia A. English
Eugene A. Enneking
Neil R. Ericsson
Lawrence R. Ernst
Kent M. Eskridge
Mark A. Espeland
Sylvia R. Esterby
M. Donan Estill
Michael J. Evans
David Fairley
Ray E. Faith
Frederick W. Faltin
Dean H. Fearn
Michael B. Feil
Michael L. Feldstein
Luisa T. Fernholz
G. Donald Ferree
Christopher A. Field

Longtime Members

Carl Thomas Finkbeiner
Dianne M. Finkelstein
Hans-Theo Forst
T. A. Foster
Leroy A. Franklin
Anne E. Freeny
Larry D. Freese
Stephen A. Freitas
Frederick L. Freme
Arthur Fries
Paul Gallo
Michael A. Gates
Constantine Gatsonis
Jeffrey J. Gaynor
Robin T. Geiger
Joseph C. Gfroerer
Malay Ghosh
Ned M. Gibbons
Brenda Wilson Gillespie
John A. Gillespie
Michael E. Ginevan
William J. Glynn
Alfred D. Godfrey
Huseyin A. Goksel
Joe Fred Gonzalez
Barry I. Graubard
J. Brian Gray
Janis G. Grechko
John W. Green
Stephanie J. Green
William H. Greene
Joel B. Greenhouse
James A. Grimes
David J. Groggel
Cynthia R. Gross
Shulamith T. Gross
Berton H. Gunter
Yesvy Gustasp
Josue Guzman
Perry D. Haaland
Michael Haber
Michael D. Hale
William A. Halteman
Katherine T. Halvorsen
Michael S. Hamada
David C. Hamilton
Herbert Hamilton
John B. Hannon
J. Michael Hardin
William V. Harper
Stephen P. Harris
Jeffrey D. Hart
Rachel M. Harter
Nancy C. Hassett
Gary D. Hatfield
Maurine A. Haver
William D. Heavlin
Charles E. Heckler
Harold V. Henderson
David H. Henry
Ellen Hertzmark
Paul A. Herzberg
Michael Hesney
Richard P. Heydorn
Chihiro Hirotsu
Joseph G. Hirschberg
Edward C. Hirschland
Douglas A. Hlavacek
Lorrie L. Hoffman
Howard R. Hogan
Larry R. Holden
Paul S. Horn
Robert L. Houchens
Carol C. House
Lee Huang
Wei-Min Huang
Arthur L. Hughes
Edward Hughes
Allen C. Humbolt
Luis H. Hurtado
Deborah D. Ingram
Henry F. Inman
John M. Irvine
Denis George Janky
Guillermina Jasso
Jean G. Jenkins
Linda W. Jennings
Herbert Y. Jew
Karl-Heinz Jockel
Bruce E. Johnson
Gary R. Johnson
LuAnn K. Johnson
Robert E. Johnson
Albyn C. Jones
Karen C. Jones
Michael P. Jones
Shelton M. Jones
Harmon S. Jordan
David R. Judkins
Karen Kafadar
Lee D. Kaiser
Leslie A. Kalish
Tzu-Cheg Kao
Roxanne Kapikian
Bruce A. Kaplan
John M. Karon
Mitchell B. Karpman
Charles R. Katholi
Barry P. Katz
Darryl Katz
Joseph L. Katz
Jerome P. Keating
Elizabeth J. Kelly
Joan Kempthorne-Rawson
Arthur J. Kendall
Harry J. Khamis
Byung-Soo Kim
John E. Kimmel
Robin Laurence Kirby
Syed N.U.A. Kirmani
John C. Klensin
George J. Knafl
David P. Kopcso
Edward L. Korn
Samuel Koslowsky
Kallappa M. Koti
Stavros Kourouklis
Kenneth J. Koury
Lawrence Krasnoff
Jeffrey P. Krischer
Alok Krishen
Pieter M. Kroonenberg
Katherine B. Krystinik
Naoto Kunitomo
Lynn Kuo
James R. Lackritz
Edward Lakatos
Mansum A. Lam
Kuang-Kuo Gordon Lan
Jurate M. Landwehr
Jerry Langley
Stephen S. Langley
Linda B. Lannom
Lisa M. LaVange
Barbara A. Leczynski
Hyunshik J. Lee
Kwan R. Lee
John J. Lefante
Greg M. Lepak
Donald K. Lewis
Richard A. Lewis
Steven A. Lewis
Frederick W. Leysieffer
Wai K. Li
Lillian S. Lin
Barbara A. Lingg
Charles L. Liss
Robert E. Little
Jen-Pei Liu
George A. Livingston
Wei-Yin Loh
Roger Longbotham
Stephen W. Looney
Helmut Luetkepohl
Michael J. Luvalle
Michael F. Macaluso
John MacIntyre
Michael E. Mack
Stephen P. Mack
Donald MacNaughton
Jay Magidson
James D. Malley
Mervyn G. Marasinghe
Sue M. Marcus
David A. Marker
Paul J. Marovich
Ray L. Marr
Albert W. Marshall
James Martin
Adam T. Martinsek
John D. Marunycz
Paula E. Mason
Michael P. Massagli
Joe Matsuoka
Carl A. Mauro
Fred M. Mayes
Charles Maynard
Michael J. Mazu
Paul R. McAllister
Donna K. McClish
Joseph P. McCloskey
Kenneth F. McCue
Peter McCullagh
Janet Elizabeth McDougall
Daniel L. McGee
Philip G. McGuire
Christine E. McLaren
Kenneth B. McRae
Ronald E. McRoberts
Kathleen A. Mellars
Shailendra S. Menjoge
W. David Menzie
Michael Meredith
Samuel Merrill
Marianne E. Messina
H. Andrew Michener
William E. Mihalo
Eva R. Miller
Michael F. Miller
Renee H. Miller
David H. Moen
Leyla K. Mohadjer
Donna L. Mohr
Robert J. Mokken
George E. Morgan
Walter T. Morgan
Elizabeth A. Morgenthien
June Morita
David T. Morse
Michael J. Morton
Tetsuro Motoyama
Ronald P. Mowers
Daniel H. Mowrey
Lawrence H. Muhlbaier
Nitis Mukhopadhyay
Keith E. Muller
Alvaro Munoz
Jay Munson
Bengt Muthen
Haikady N. Nagaraja
John C. Nash
Larry Alan Nelson
Dean V. Neubauer
David Butcher Nolle
Michael A. Nolte
Phillip N. Norton
Robert M. Norton
Thomas S. Nunnikhoven
Barry D. Nussbaum
Douglas W. Nychka
H. Dennis Oberhelman
Kevin F. O'Brien
Walter W. Offen
Thomas W. O'Gorman
Francis G. Ogrinc
Akinori Ohashi

Longtime Members

Noboru Ohsumi
Thomas H. Oliphant
Frank Olken
John A. Ondrasik
George Ostrouchov
Soo Peter Ouyang
William J. Owen
Albert Palachek
Alberto Palloni
J. Lynn Palmer
Mari Palta
Deborah L. Panebianco
Sastry G. Pantula
Corette Breeden Parker
Mary R. Parker
Robert A. Parker
Rudolph S. Parrish
Robert E. Parson
Lee Parsons
Sharon M. Passe
Jeffrey S. Passel
Kevin Pate
Charles L. Paule
Roxy L. Peck
Jane F. Pendergast
Elgin S. Perry
David W. Peterson
John J. Peterson
Joseph D. Petruccelli
Daniel Pfeffermann
Gerald L. Phillips
Gregory F. Piepel
Joseph G. Pigeon
Chester H. Ponikowski
Dudley L. Poston
Paul N. Powell
Manfred Precht
Louis H. Primavera
Howard M. Proskin
Lloyd P. Provost
Jamie K. Pugh
William M. Pugh
Clifford R. Qualls
Tony K. S. Quon
Volker W. Rahlfs
James O. Ramsay
Richard F. Raubertas
Gopa Ray
Domenic J. Reda
Nancy Reid
Mark R. Reiser
William K. Rice
Wasima N. Rida
Mark William Riggs
William J. Riley
Edwin L. Robison
David M. Rocke
Mark H. Rodeffer
Ward Rodriguez
Nestor Rohowsky
Javier Rojo
Anthony M. Roman
Elvezio Ronchetti
Robin L. Rose
Gary L. Rosner
Arthur J. Roth
Peter J. Rousseeuw
Lawrence V. Rubinstein
Andrew L. Rukhin
David Ruppert
Roland T. Rust
Steven W. Rust
Jim Rutherford
Pedro J. Saavedra
Michael S. Saccucci
William H. Sachs
Jerome Sacks
Ester Samuel-Cahn
Ulderico Santarelli
Robert L. Santos
Michael J. Santulli
Adriano L. Sarmiento
Miles M. Sato
Nathan E. Savin
John W. Sawyer
William G. Saylor
Stephen M. Scariano
Stephen Schacht
David J. Schaeffer
Daniel W. Schafer
Kenneth Schechtman
Mark J. Schervish
Mark F. Schilling
Brian R. Schlain
Mark D. Schluchter
David C. Schmittlein
Paul R. Schneeman
Donald E. Schreiner
Charles B. Schriver
Phyllis A. Schumacher
Steven J. Schwager
Lawrence A. Schwartz
Sidney H. Schwartz
Michael Schwarzschild
James R. Schwenke
David W. Scott
Marilyn M. Seastrom
Teddy I. Seidenfeld
Joanne B. Severe
Joseph Severs
Thomas R. Sexton
Ramalingam Shanmugam
Steven J. Shapiro
Mohammed A. Shayib
Mack C. Shelley
John T. Shelton
Mark R. Shenkman
Malcolm J. Sherman
Weichung J. Shih
Lucy Shneyer
Harland H. Shoemaker
Gary L. Shoop
Glenn E. Shorrock
Patrick E. Shrout
Stanley A. Shulman
Arthur R. Silverberg
Jeffrey S. Simonoff
Terry L. Sincich
Judith D. Singer
Christopher John Skinner
Joan H. Skurnick
Charles Eugene Smith
Elizabeth C. Smith
Richard L. Smith
Richard J. Smith
Robert A. Smith
Stephen J. Smith
Tom A.B. Snijders
Karen L. Snowdon-Way
Jose Francisco Soares
Francisco P. Soler
Keith A. Soper
Eric R. Sowey
Terence P. Speed
Floyd W. Spencer
Clifford H. Spiegelman
Gene D. Sprechini
Donald M. Stablein
Edward J. Stanek
Joel H. Steckel
Barbara Stevens
Robert A. Stine
David S. Stoffer
Maura E. Stokes
S. Lynne Stokes
Dan C. Stone
Michael A. Stoto
Walter W. Stroup
Mark Lionel Suda
Stephen R. Sulpor
James J. Swain
Yoshio Takane
Roy Noriki Tamura
Robert M. Tardiff
Deborah L. Tasky
Erica S. Taucher
Robert L. Taylor
George R. Terrell
Marcia A. Testa
Brian J. Thelen
David M. Thissen
Hanspeter Thoeni
Mary E. Thompson
Theodore J. Thompson
Peter James Thomson
Anthony D. Thrall
Luke-Jon Tierney
Richard B. Tiller
Naitee Ting
Ronald R. Titus
David C. Trindade
David L. Tritchler
L. Claire Tsao
Ruey-Shiong Tsay
Clyde Tucker
Thomas P. Turiel
Thomas J. Uryniak
Esa Ilkka Uusipaikka
Pamela M. Vacek
Hernando Valencia
Richard Craig Van Nostrand
Stephen B. Vardeman
Denton R. Vaughan
Steven J. Verhulst
Steve P. Verrill
Joseph G. Voelkel
Joachim Vollmar
Edward F. Vonesh
Grace Wahba
Howard Wainer
Paul G. Wakim
Joel A. Waksman
Lars Walloe
Chai-Ho C. Wang
Carol Weideman
David L. Weimer
Clarice R. Weinberg
James G. Wendelberger
Robert M. Wharton
Glenn D. White
David C. Whitford
Dexter C. Whittinghill
Priya J. Wickramaratne
Christopher John Wild
William E. Wilkinson
Thomas R. Willemain
Jeffrey R. Wilson
William E. Winkler
F. Lennie Wong
Farroll T. Wright
Linda J. Young
Elizabeth R. Zell

Thank you

ASA LEADERS REMINISCE

Vincent P. Barabba

Jim Cochran

In this installment of the Amstat News *series of interviews with ASA presidents and executive directors, we feature a discussion with 1990 ASA President Vincent P. Barabba.*

Barabba

Q Vince, I appreciate your willingness to take time to talk with me. You worked as a political campaign survey researcher from 1964–1962. What did you learn about statistics, politics, or anything else from that experience?

A Although I did not fully appreciate it at the time, my involvement in the political arena demanded a more relevant and dynamic approach to addressing problems than I had been exposed to during my undergraduate and graduate education. I also learned the importance of understanding the context within which the problem I was working on existed. A good example of this occurred in June of 1972 when I met with Sen. John Tower, who was running for re-election to the U.S. Senate from Texas. I was to deliver the results of a survey we just completed. As I entered the room, Tower, who was already sitting down, said in a stern tone, "Sit down, young man. I understand that you have some bad news for me—which I am also told is not correct."

I explained that the information I was providing was accurate, and that it only reflected voter perceptions at the time the survey was conducted and was not a prediction of the outcome of the race. I also said the results showed that his competitor, "Barefoot" Sanders, was perceived as more conservative simply because he had defeated a perceived liberal in the Democratic primary. Tower interrupted me and said the survey was not accurate—it

Vincent P. Barabba is the co-founder and chair of Market Insight Corporation. Created by MyProductAdvisor.com, Market Insight Corporation is a consumer-facing website designed to provide shoppers with unbiased customized automotive product recommendations.

Vince retired in 2003 as the general manager of corporate strategy and knowledge development at the General Motors Corporation, where he played a critical role in the development of OnStar.

He served in the United States Air Force from 1954–1958 and is a member of the California Citizens Redistricting Commission. He served twice as director of the U.S. Census Bureau, and is the only person to have been appointed to that position by U.S. presidents of different political parties.

Vince has the distinction of having been appointed to government positions by five presidents: Richard Nixon, Gerald Ford, and Jimmy Carter to be U.S. Census Bureau director and Ronald Reagan and George H. W. Bush to be the U.S. representative to the Population Commission of the United Nations. Between his government service and General Motors assignments, he served as the manager of market research for the Xerox Corporation and director of market intelligence for Eastman Kodak.

Vince was a co-founder of Decision Making Information, and he and this organization provided electoral information to political campaigns from city hall to the presidency from 1969–1973. He also served on the board of directors for the Marketing Science Institute, American Institutes for Research, and National Opinion Research Center of the University of Chicago.

In recognition of his performance in the private and public sectors, Vince has received several awards and honors, including an honorary doctorate of laws degree from the trustees of California State University; the Distinguished Alumni Award from California State University at Northridge; induction into the Market Research Council Hall of Fame; the American Marketing Association's Parlin Award for leadership in the application of science to the discipline of marketing research; the MIT/GM Henry Grady Weaver Award for individuals who have contributed the most to the advancement of theory and practice in marketing science; an honorary membership in the National Computer Graphics Association; the System Dynamics Society's Applications Award for the best "real-world" application of system dynamics; the Certificate of Distinguished Service for Contribution to the Federal Statistical System from the Office of Management and Budget; and the American Marketing Association's EXPLOR Award (through Market Insight Corporation), granted to organizations that have demonstrated the most innovative uses of technology in applications that advance research, online or otherwise.

Vince is a co-author of *Business Strategies for a Messy World* (2013 Palgrave Macmillan), *The Decision Loom* (2011 Triarchy Press), *Surviving Transformation* (2004 Oxford University Press), and *Meeting of the Minds* (1995 Harvard Business School Press). He is the co-author of *Hearing the Voice of the Market* (1991 Harvard Business School Press) and *The 1980 Census: Policy Making Amid Turbulence* (1983 Lexington Books). He also served as chair of the National Research Council panel to review the statistical program of the National Center for Education Statistics.

My belief is that although the ASA has made progress in its efforts to ensure the knowledge it develops is used to make a difference . . . more effort to increase the effective use of what is created would be beneficial.

was well known that Sanders was not a conservative. I pointed out that we weren't measuring reality. We were just measuring perception. Then I smiled and said, "That's the good news."

Tower gave me a perplexed look and asked me to explain myself. My explanation was simple: If the actual record showed that Sanders was indeed more liberal than Tower, all Tower had to do was show the facts.

"You're right," the Senator said, now smiling and much more enthusiastic. "That will not be too difficult to do. That is good news!"

He then asked me what his campaign staff should do. I suggested he provide explicit examples of where his positions were more conservative than those held by Sanders. In addition, I suggested he get as many conservative Democrats as possible to endorse his candidacy or, at the least, to not publicly endorse Sanders. In November, Tower defeated Barefoot Sanders 55% to 45%. This is a terrific example of how *the value of information is in its use . . . not its collection!*

The basic point of this story is that the information from the surveys did not cause Tower to be re-elected. What caused his re-election was the manner in which Tower and his campaign organization addressed issues the survey identified. In other words, it was the senator's willingness to overcome his early reservations about findings that were inconsistent with his perceptions and his acceptance that the survey was not a report card on him personally that led to *uses* of the information that mattered. And for me, an experience-based form of learning had just started.

COMING UP
Please return to this column next month, when we will feature an interview with 1990 ASA President J. Stuart Hunter.

Q In what volunteer roles had you served the ASA prior to being elected ASA president?

A While I was at the Census Bureau through the 1970s, I spent a considerable amount of time working to improve access to the results of the various census studies. Part of that effort was the attempt to present the information in a graphical form. There were many papers written and conferences set up and supported by the Census Bureau staff. The effort led to an increased discussion about the use of graphics as a method to display statistics in a form that might be better understood by a wider audience.In 1985, I worked with several society members (I think Al Biderman was one of them … might be worth checking) to encourage the ASA to establish the Statistical Graphics Section. As stated in the description of the section, "The principal objectives of this section are to foster understanding and proper use of statistical graphics in statistics, other scientific fields, the mass media, and the general public and to encourage the teaching of statistical graphics in universities, colleges, secondary schools, and primary schools, as well as encourage research in statistical graphics." I've always felt that was one of my most meaningful contributions.

Q What are your feelings about the future of the ASA? What makes you particularly optimistic about the ASA's future? What concerns do you have that you feel need to be addressed?

A My feelings toward the future of the ASA are generally positive. Today, there is a greater appreciation for the need to bring together the efforts in improving scientific observation (knowledge) and rational intuition (imagination). The need to ensure that the knowledge created is designed for its eventual use is found in the wisdom of C. West Churchman when he wrote the following:

> To conceive of knowledge as a collection of information seems to rob the concept of all its life. Knowledge is a vital force that makes an enormous difference in the world. Simply to say that it is storage of sentences is to ignore all that this difference amounts to.

To conceive of knowledge as a collection of information seems to rob the concept of all its life. Knowledge is a vital force that makes an enormous difference in the world. Simply to say that it is storage of sentences is to ignore all that this difference amounts to. ■

Introducing the only Online Graduate Degree Program in Survey Methodology

JPSM

The Joint Program in Survey Methodology

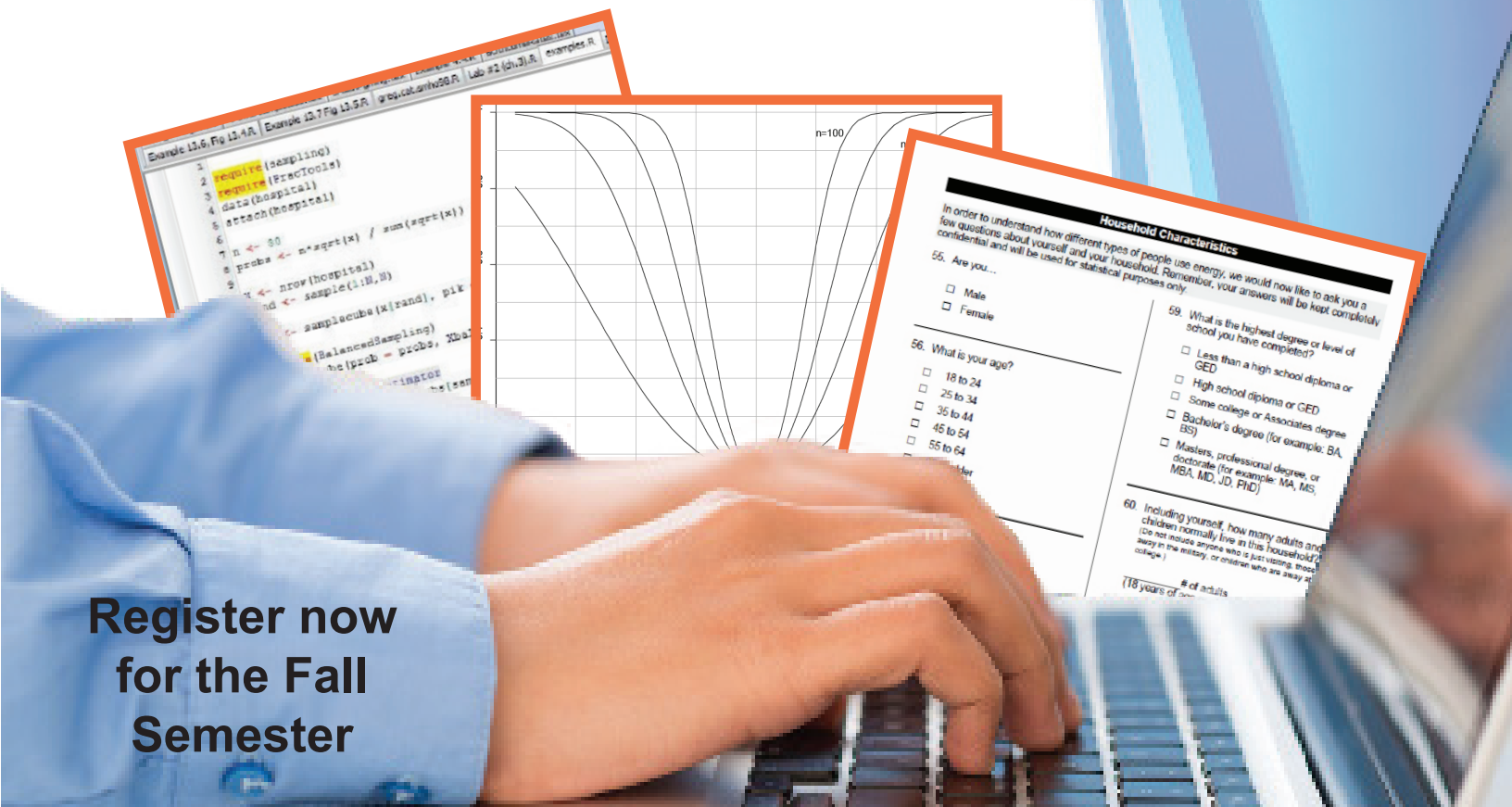
A Consortium of the University of Maryland, the University of Michigan, and Westat

Expand your knowledge in the areas of:

- Applied Sampling
- Questionnaire Design
- Analysis of Complex Data
- Small Area Estimation
- Social and Cognitive Foundations of Survey Measurement
- And more!

For more information and to register, please visit

jointprogram.umd.edu

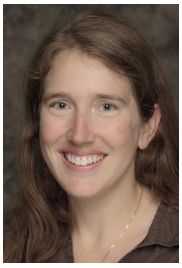


Register now for the Fall Semester

Negotiating a Statistical Career

Part 1: A JSM Panel Discussion

This blog post is reprinted with permission by the author, Leila Zelnick.



Leila Zelnick is a biostatistician, reader, runner, cook and baker (there's a difference!), musician, gardener, and occasional blogger.

NEXT MONTH
We'll print Part II, but if you can't wait, visit Zelnick's blog post at *http://bit.ly/1ciw2lm.*

One the highlights of the 2014 Joint Statistical Meetings in Boston for me was attending a panel discussion on negotiation in a statistical career, from the initial job offer to negotiating leave and even retirement terms. While I am getting wonderful training in the theory and applications of (bio)statistics as part of my PhD program at the University of Washington, practical advice such as this is less common. The session was sponsored by the Joint Committee on Women in the Mathematical Sciences, among others, and though the advice given was applicable to all, the panel especially addressed issues of interest to women, who historically do less negotiating than men (to their professional detriment).

The panel was moderated by Paula Roberson (PR), professor and chair of the biostatistics department at the University of Arkansas for Medical Sciences, and the panelists were:

- **Nandini Kannan (NK)**, professor of statistics at the University of Texas at San Antonio and past/future program director at the National Science Foundation
- **David Madigan (DM),** professor of statistics, executive vice president, and dean of the faculty of arts and sciences at Columbia University
- **Nancy Reid (NR),** professor of statistics at the University of Toronto
- **Kelly Zou (KZ),** director of statistics and statistics lead in market research at Pfizer Inc.

The morning began with a discussion of effective and ineffective negotiation techniques during the initial recruitment process. Here is a brief summary of the panel's dos and don'ts:

DO ...

Know the market. The ASA publishes surveys of salaries by sector every couple of years; these can help you get an idea of what salaries might be reasonable for someone with your experience (though location and cost of living should also be considered). Salaries in the academic arena will also differ by the type of institution (a large research institution may have more flexibility in salary than a teaching-focused college, for example) or by the kind of department (biostatistics vs. statistics vs. mathematics, etc.). Talking to friends who have gone through the process recently may be helpful; recruiters will likewise know the market well and can give you an indication of the prevailing winds. In evaluating salary offers, especially in industry, keep in mind that compensation may be a mix of base salary, bonuses, and stock options.

Think outside the box. Although it is often the focus, salary is not the only dimension worth considering. At academic institutions, the department's hands may be tied with respect to salary, but the department chair may have more flexibility with respect to physical space, teaching load, summer support, and/or startup packages. Even in government or industry, there may be nonmonetary benefits such as telecommuting that can make a job more attractive.

Ask for what you think you deserve. Women especially tend to feel that negotiating will reflect badly on them, but it is expected, not adversarial. As NR explained, negotiating is really "a friendly

Call for Abstracts for 2016 Conference on New Data Linkages

The Social Observatories Coordinating Network (socialobservatories.org) is planning a conference in the Washington, DC, area in March 2016 to highlight research programs that demonstrate novel linkages between at least two distinct data sources, types, or modalities and answer an important social scientific question.

Examples of novel data linkages include new combinations of survey and administrative data, community indicators and individual observational data, and social media and economic indicators. Submissions must relate empirical results from a study that addresses a specific research question.

Papers will be presented at a conference in March 2016 and submitted for an edited volume. Selected participants will have conference expenses paid and receive a modest honorarium upon successful chapter completion.

Interested researchers should submit a 3–5-page paper prospectus to Sandra Hofferth at *hofferth@umd.edu* by August 20. Submitters will be notified by October 15.

exercise that is better for both of you." And it's okay to walk away from the offer if necessary.

Realize you won't necessarily get everything you ask for. But you definitely won't get what you don't ask for.

Bring up the terms of a competing offer, where applicable. There is nothing inappropriate about this, and it can be a powerful tool (or a "reinforcement of your value," as DM said). Especially in university settings, there can be a staggering range in salaries—at least a factor of two between the highest and lowest paid at the same level of responsibility! DM attributes this to both differences in negotiation at the outset and retention packages later in one's career. Bringing up another offer will be most effective when the jobs are similar in terms of location, desirability, and responsibility.

DON'T …

Jump at the first offer. It smacks of desperation and can indicate you don't really know your own worth.

Come with a "laundry list." Or be completely inflexible in negotiating.

Negotiate against yourself. NR recommends resisting the temptation to jump to the end of negotiations ("Give me a number.") because of discomfort with the process of negotiation. Don't hand over your power immediately, and don't try to imagine what's going on in the other person's head (Can they afford this? Who will teach this class if I don't?). That's not your job in the negotiation process!

Take a job that will make you miserable. No matter the salary.

The panel also addressed a number of specific situations later in one's career in which negotiation techniques might be needed. I'll tell you more about those next month, but if you can't wait, visit my blog post at *http://bit.ly/1ciw2lm.* ■

Editor's Note: All opinions expressed here are those of the author and do not necessarily reflect those of the American Statistical Association or the panelists. Some comments and questions have been summarized for content to the best of the author's ability.

STAFF SPOTLIGHT:

Amanda Conageski

Hello! My name is Amanda Conageski, and I am the ASA's newest meetings planner. As a member of the meetings department, I will be working on the Conference on Statistical Practice, Joint Statistical Meetings, and other meetings throughout the year. I am excited to be part of this team and want to take a minute to tell you a bit about myself.

Growing up, I lived in Kentucky, Delaware, Texas, and West Virginia. I went to George Mason University and earned a BA in government and international politics. After graduating, I worked at a small consulting firm in DC as the office manager. Before joining the ASA, I worked for the United States Tennis Association in White Plains, New York, in membership and community tennis marketing. To answer the seemingly inevitable question I receive, no, I can't get you tickets to the U.S. Open.

In my spare time, I enjoy attempting to make things off Pinterest (ask me about my Fourth of July fruitcake), binging on Netflix, listening to podcasts, and taking barre classes. I am also a self-declared news junkie. I recently married and have an adorably dopey boxer named Becks.

Please don't hesitate to contact me at *amandac@amstat.org* if you have any questions, want to say hello, or talk about "House of Cards"! ■

MASTER'S NOTEBOOK

Cultural Values, Statistical Displays

Ian Crandell, Virginia Tech Department of Statistics.

From left: Emmanuel, Femi, Ian, Olawale, and Edward make up the core members of the Laboratory for Interdisciplinary Statistical Analysis and Collaboration (LISAC).

Emmanuel and I waited in my office for our client. She was a graduate student in health sciences, one of the first people I'd help during my six-month visit to Nigeria. When she arrived, she and Emmanuel exchanged pleasantries in their native language of Yoruba, leading in short order to the reason for her visit: how to report the results from her survey about maternity work.

After a thorough discussion, the client gave us her data and left us to produce the statistical displays. I worked with Emmanuel (one of the statistics undergraduates I am mentoring) for a few days, training him to think about what the data say about the research questions and how to bring those statements to light succinctly. We made crisp plots, answering the client's questions with precision and adding nothing to clutter or distract from the thesis of her work. We submitted the job with pride.

Our client returned the next day, dismayed. She asked why we didn't make more plots, where the tables were, and why we didn't address every question on the survey. She asked for so much distraction and clutter that I was at loss for words. Why did she need all that nonsense? What I didn't understand was that my aesthetic values were not hers, and that the qualities of a good statistical presentation depend on culture.

In the United States, the predominant style for statistical displays is that put forth by Edward Tufte in books such as The Visual Display of Quantitative Information. Tufte's style is minimalist and clean. He extols us to avoid unnecessary figures and cluttered graphs, to present data in a way that displays all the information but also illustrates macro scale trends. American statisticians are encouraged to think of displays as providing a

clear and concise argument for, or against as the case may be, the researchers' claims. Displays in this style make the researcher appear precise and competent, as if they understand their material so well they can distill it to its essence. As an American, these values are mine as well.

In January, I came to Nigeria as part of the LISA 2020 program—led by Eric Vance, director of the Laboratory for Interdisciplinary Statistical Collaboration (LISA) at Virginia Tech—to create a network of 20 statistical collaboration laboratories in developing countries by 2020. I am in Nigeria at Obafemi Awolowo University for six months to help grow and sustain the newly formed Laboratory for Interdisciplinary Statistical Analysis and Collaboration (LISAC), alongside its coordinator, Olawale Awe, the first LISA fellow. The lab here is the first (of three so far) statistics labs in the LISA 2020 network. When I came, I didn't think Nigerians would share the same moral and cultural values as me—why would they?—but surely the aesthetics of statistical displays weren't so dependent on culture.

While I still hold that Tufte's style is the optimal style to appear as Americans want to appear, I now realize Nigerians have different priorities. Our client didn't want a distillation, she wanted a transcription. She wanted us to summarize all the information, to lay it all out, to have the complete picture and not the interpretation of one. To Nigerians, in my experience, minimalist displays look lazy and even duplicitous. If our client had been able to articulate these cultural differences, maybe I wouldn't have gotten so frustrated with her. I felt she wanted an absurd amount of plots, redundant tables, and multiple bar plots showing the same data as percentages and frequencies. These requests were anathema to me, explicit violations of Tufte's exhortation to avoid extraneous figures and chart junk.

A few weeks later, another client came to LISAC, with data from a designed experiment in civil engineering, a textbook 2^3 full factorial with replicates. I was ecstatic to work on a well-designed experiment and put some of the cultural knowledge I had acquired to good use. Femi, another promising collaborator I am helping to train while in Nigeria, and I put together another fine report, this one more verbose. The client was happy at first, but kept coming back for questions of an increasingly technical nature. We even derived for him the normal equations for the coefficient estimates, manipulating block lettered matrices like Legos before his eyes. This also has been typical of my experience here. Nigerian researchers, unlike Americans, want to see all the equations.

Recently, another of our finest collaborators, Edward, produced 77 plots for a client. I'm pleased to report that the client was satisfied with our work, saying it was very thorough.

The point of all this is that, as statistical collaborators, we need to be aware of what our clients want to say about their data and, ultimately, about themselves. The Nigerian researchers I've worked with want to look like they have all the facts, like they've looked at every angle and can show you all the figures, like they understand all the math and could derive everything right here right now if asked. Other cultures will have other values they wish to display. Therefore, statistical aesthetics are dependent upon culture. Effective communication requires that we be aware of this and learn what clients from other cultures value.

[A]s statistical collaborators, we need to be aware of what our clients want to say about their data and, ultimately, about themselves.

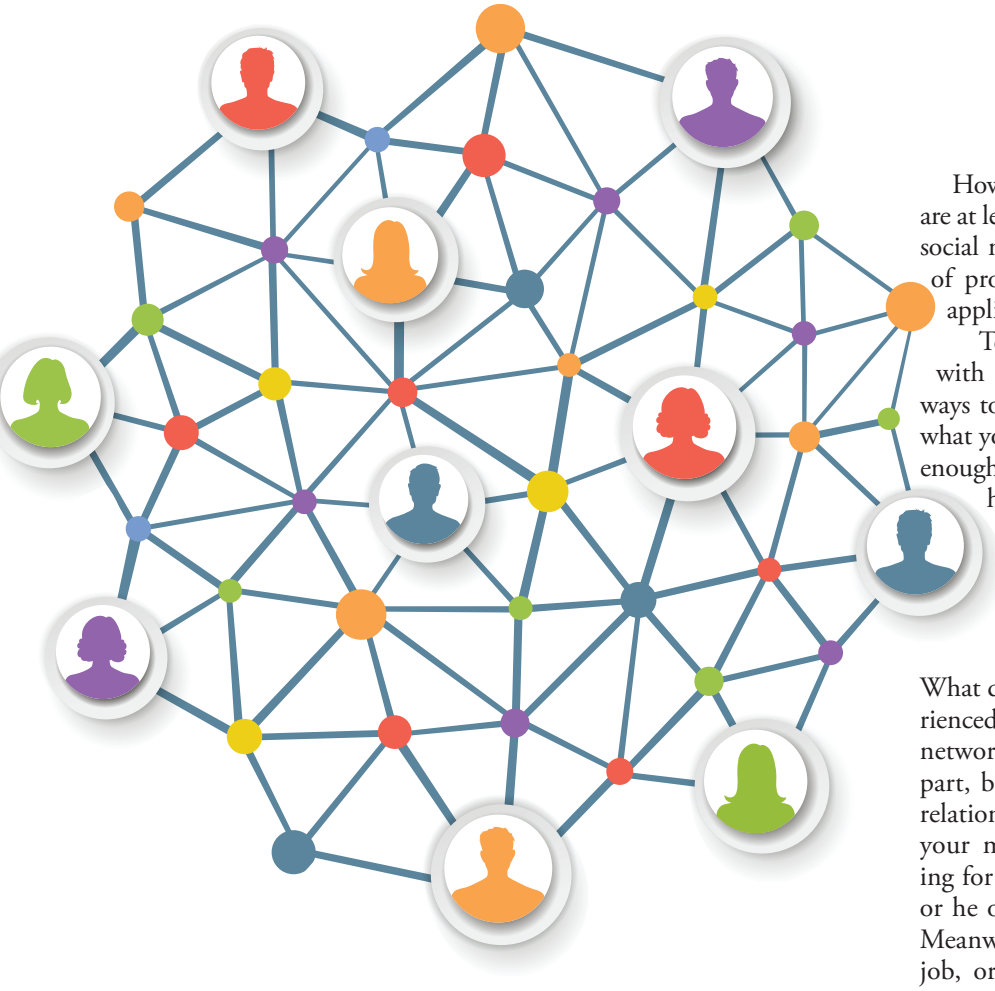
Eventually, Emmanuel helped me understand where our client was coming from in making the requests about her survey. I was reluctant, at first, to do as she asked because I thought her requests would harm her case more than help it. But I misunderstood the case she was trying to make. Once I understood this, I apologized and we fulfilled her requests. As I've reflected on this encounter, I've come to appreciate the Nigerian style. Providing vast amounts of output gives researchers the ability to check our work and question our methods. It's nice that my American clients trust me to provide only what I think they need, but I also have a lot of respect for the Nigerians who want to come to their understanding on their own.

Learning that statistical aesthetics depends on culture is one of the most valuable lessons I'll take from my Nigerian expedition. But the lesson applies to all statistical collaborations, not just cross-cultural ones. All statisticians need collaborative skills; our science doesn't exist in a vacuum. Now I know that to collaborate effectively, we need to understand how to help our clients speak, as well as what they want to say. ■

STAT*tr@k*

Two Principles for **Building Your Networks**

Ron Wasserstein, ASA Executive Director



During my lifetime, "network" became a verb, but the concept no doubt has been around from the earliest days of human history. The ways to form personal and professional networks have changed over time, and like everything else in our lives, the pace of change has accelerated greatly in the Internet era. LinkedIn, BranchOut, Meetup, and other online networking services provide unique ways to connect with others. In my view, developing one's networks—professional and personal—is important to not only career advancement, but also to feelings of fulfillment and happiness in life.

However you choose to make connections, there are at least two networking principles that preceded social media. I'll discuss these principles in terms of professional networks, but they also can be applied to personal ones.

To begin, you should build your network with others in mind. That is, as you consider ways to connect with specific people, ask yourself what you can bring to the relationship. This is easy enough when you are networking with peers—you have the ability to provide advice and support for them, and they for you. They can let you know when good opportunities that fit you become available, and you can do the same.

However, what about networking upward? What do you have to offer to someone more experienced and/or farther up the ladder? This upward networking requires a bit more thought on your part, but there are aspects that can make such a relationship a win for both parties. For instance, your more-experienced colleague may be looking for people to nurture for the next career level, or he or she may value hearing your perspective. Meanwhile, you may be trying to find that next job, or simply to learn from people with more experience. Through this two-way exchange, you both win.

And that is principle #1: **People are people, not network nodes**. You must always view the individuals you are trying to connect with from the perspective of how you might meet their needs, not just how they could meet yours. One of the most annoying types of person is the one who sees networking as collecting, who sees prospects instead of people, and who thinks only about getting. Don't be that person!

I have found that a practical way to follow the first principle is principle #2: **Volunteering makes for great network connections.** I have made many wonderful professional connections—

and terrific friends—by volunteering in the neighborhood, at school, for my children's sports teams or dance clubs, at work, and at the ASA before I became its executive director.

There are multiple benefits to building your network this way. Not only do you meet people, but you learn from them and about them as you work side-by-side to accomplish a task. I learned how to run a meeting—and, more importantly, how not to—from my volunteer activities. I saw examples of how to effectively express gratitude to volunteers that I hope I have modeled for others. Barriers come down and real openness often occurs in these settings, and networking happens organically in the process.

As the executive director of the ASA, I'd be remiss if I didn't emphasize how volunteering to serve in ASA chapters, sections, committees, and outreach groups is a tremendous way for you to build a professional network and make lifelong friends. (By the way, the address by 2014 ASA President Nat Schenker [*www.amstat.org/meetings/jsm/2014/webcasts/index.cfm*] illustrates this valuable message well.) I have no doubt those 20 years of ASA volunteer work helped build the network that ultimately led me to this wonderful opportunity to serve the association as its chief executive.

The two principles I have explained here—learned from others in the ASA and in my career in academia—have been a solid guide along the way. ■

GET INVOLVED
There are many ways to build your professional network through the ASA. For info, click on the "Get Involved" page on STAT*tr@k* at *http://stattrak.amstat.org/involvement.*

6000+ Statisticians Expected in Seattle This August

With more than 3,000 presentations arranged into 183 invited sessions, 400 contributed sessions, and 400 individual poster and speed presentations, the 2015 Joint Statistical Meetings (JSM) will be one of the largest statistical events in the world.

In addition to the 45 parallel sessions taking place during most of the meetings, there are the other activities you can add to your program—Professional Development courses and workshops, roundtable discussions, and the Career Service.

This year, we'll have the Opening Mixer in the exhibit hall and live music at the dance party. You'll also want to tour Seattle. In short, we expect you to be very busy … and to not mind it at all.

Here are a few highlights to let you know what to expect. We hope to see you there!

Featured Speakers

ASA President's Invited Address

Christine Fox

Former United States Deputy Secretary of Defense

August 10, 4:00 p.m.

IMS Presidential Address

Erwin Bolthausen

University of Zurich

Some Thoughts About the Relations Between Statistics and Probability Theory

August 10, 8:00 p.m.

Traditionally, there has been close relations between statistics and probability theory. This is present in the work of Bernoulli, whose motivations to prove the strong law of large numbers were his thoughts about the consistency of statistical estimators. Also, much later, important developments in probability theory such as the asymptotic distribution of the Kolmogorov-Smirnov statistic or large deviation theory, which has partly been motivated by efficiency considerations in statistics, were triggered by questions in statistics. In the past decades, probability theory saw many important developments that have seemingly no relation with statistics, such as Schramm Loewner equations, spin glasses, and random media. As a consequence, there is no longer an equally intensive communication between the two communities. Based on a number of examples, I will argue that this is not ideal for either side. Being a probabilist and talking at a statistics meeting, the viewpoint will, of course, be biased.

ASA Deming Lecture

William Q. Meeker

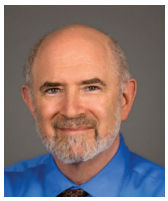
Iowa State University

Reliability: The Other Dimension of Quality

August 11, 4:00 p.m.

During the past 30 years, manufacturing industries have gone through a revolution in the use of statistical methods for product quality. Quality programs such as Total Quality Management, Six Sigma, and Lean Six Sigma have had various degrees of implementation and success. One effect of the quality revolution is that statistical methods such as process monitoring and experimental design are much more commonly used today to improve and maintain high quality. A natural extension of the revolution in product quality was to turn the focus to product reliability, which can be succinctly defined as "quality over time." This has given rise to programs such as Design for Reliability and Design for Six Sigma. In this talk, I will discuss the relationship between engineering quality and reliability and outline the role statistics and statisticians have in the field of reliability. I will explain how improvements in technology are changing the manner in which reliability is practiced and some of the scientific, engineering, and statistical challenges that lie ahead.

ASA Presidential Address



David Morganstein

Westat

Statistics: Making Better Decisions

August 11, 8:00 p.m.

Statisticians play a vital role in making better decisions. Like other scientists, statisticians contribute an important objectivity to the discovery process. One of our special gifts, however, is an ability to incorporate the inevitable limitations of information into the decision-making process. In her presidential address, Gertrude Cox looked to "Statistical Frontiers" and challenged us to recognize our obligations toward other human beings. In response, we have done much to become a diverse, multicultural community and there is more we can do! I'll review recent initiatives that enhance our association's efforts to serve our members and society in solving vital problems. I'll suggest why statisticians are adept at reducing the impact of data limitations by using good designs and transforming less-than-perfect data to enhance decision making and thus improve the human condition. This is what we do. This is statistics.

REGISTER

For more information or to register, visit the JSM 2015 website at *www.amstat.org/meetings/jsm/2015.*

COPSS Fisher Lecture

Stephen Fienberg
Carnegie Mellon University

R.A. Fisher and the Statistical ABCs

August 12, 4:00 p.m.

Sir R.A. Fisher was one of the towering figures of 20th-century statistics.When I encounter a new statistical problem, I often ask myself, "What would Fisher have to say about this topic?" This year is the quasquicentennial of his birth, and I reflect on three major aspects of his legacy, which I will characterize via the letters A, B, and C as I consider their relevance for some of the challenges facing statistical theory and methodology today.

IMS Medallion Lecture I

John Lafferty
The University of Chicago

Computational Tradeoffs in Statistical Estimation

August 9, 2:00 p.m.

In massive data analysis, statistical estimation needs to be carried out with close attention to computational resources—compute cycles, communication bandwidth, and storage capacity. Yet relatively little is known about the fundamental tradeoffs between statistical and computational efficiency. I will summarize previous results in this direction and present recent work that revisits classical linear and nonparametric estimation theory from a computational perspective. In particular, I will formulate an extension to Pinsker's theorem in the setting of rate distortion theory and present algorithms for trading off estimation accuracy for computational speed in linear and nonparametric regression. Finally, I will sketch some potentially promising future research directions in computation-constrained statistics.

IMS Medallion Lecture II

Nicolai Meinshausen
ETH Zurich

Causal Discovery with Confidence Using Invariance Principles

August 10, 2:00 p.m.

Whichever definition of causality is used, a causal model for a target variable of interest should arguably yield good predictions even if other variables have been intervened on. Moreover, the prediction quality should be invariant under interventions. This is true for structural equation models under weak conditions. We use this characteristic of a causal model for inference and can derive confidence intervals for causal effects. If we just have observational data, no causal claim can be made. However, if data are observed in different environments or with interventions, we can show good power to detect causal effects both in theory and practice.

IMS Medallion Lecture III

Michael Kosorok
The University of North Carolina at Chapel Hill

Recent Developments in Machine Learning for Personalized Medicine

August 11, 2:00 p.m.

In the past decade, there has been an explosion of interest and activity in personalized medicine. The overall goal is to target treatment to individuals so clinical outcomes for those individuals are optimized. One direction of attack is to use patient data to discover decision rules that specify the treatment to use as a function of a vector of features from the patient. Regression and classification are important statistical tools for estimating such rules based on either observational data or data from a randomized trial, and machine learning can help with this because of its ability to handle high-dimensional feature spaces with potentially complex interactions artfully. For the multiple-decision setting, reinforcement learning—a type of machine learning that is neither regression nor classification—is necessary to account for delayed effects properly. There are several other intriguing nonstandard machine-learning tools that can greatly facilitate discovery of decision rules. In this talk, I will discuss the benefits of machine learning in personalized medicine, as well as new developments in machine learning inspired by the personalized medicine quest.

IMS Medallion Lecture IV

Jiashun Jin

Carnegie Mellon University

Spectral Clustering, with Applications in Gene Microarrays and Social Networks

August 12, 2:00 p.m.

Consider two seemingly unrelated, but connected, problems: clustering with gene microarrays and network community detection. In both, we view the data matrix as the sum of a low rank signal matrix and a noise matrix (the former contains the desired information of the class labels). Classical PCA is a well-known approach, but it faces challenges. I will propose two new PCA approaches—IF-PCA and SCORE—to attack each of the two problems. In IF-PCA, I carefully select a small fraction of features and apply PCA with only the selected features. In SCORE, I obtain the first few leading eigenvectors of the data matrix, take entry-wise ratios between each of such vectors and the first one, and cluster with the resultant matrix by applying the classical k-means. Both procedures are fast, conceptually simple, easy to implement, and provably effective. I have applied IF-PCA to 10 gene microarray data sets and SCORE to coauthorship and citation networks for statisticians—two data sets that were recently collected and cleaned. Both methods compare favorably over existing approaches. I will explain why the procedures work and carefully justify their advantages theoretically.

Le Cam Lecture

Jon Wellner

University of Washington

Maximum Likelihood in Modern Times: The Ugly, the Bad, and the Good

August 10, 10:30 a.m.

Maximum likelihood continues to be a theme in current statistical theory in both parametric and nonparametric settings despite the following known potential difficulties:

- Maximum likelihood estimators may not exist
- When MLE's exist, they may not be consistent
- When MLE's exist and are consistent, they may not attain minimax rates of convergence

In spite of these difficulties, maximum likelihood has also had a number of success stories in semiparametric and nonparametric problems. I will survey some of the difficulties and a selection from recent progress, including the following:

- The ugly: nonexistence, non-uniqueness, and inconsistency
- The bad: possible nonattainment of minimax rates in high-dimensional (trans-Donsker) settings
- The good: progress on
- Beyond consistency for Kiefer-Wolfowitz mixture models
- Behavior of profile-likelihood methods for semiparametric models
- Behavior of shape constrained estimators globally, locally, and under model-misspecification

Wald Lecture I, II, and III

Susan A. Murphy

University of Michigan

Lecture I: Sequential Decision Making and Personalized Treatment: The Future Is Now!

August 11, 4:00 p.m.

I will propose and discuss new experimental designs for developing treatment policies in two broad areas: guiding expert sequential decision making and developing real-time treatment policies delivered via mobile devices.

Lecture II: Offline Data Analysis Methods and Learning Algorithms for Constructing Mobile Treatment Policies

August 12, 10:30 a.m.

I will propose and discuss methods and open problems in using experimental or observational data to construct treatment policies for developing real-time treatment polices delivered by mobile devices.

Lecture III: Continual, Online Learning in Sequential Decision Making

August 13, 10:30 a.m.

I will propose and discuss methods and open problems in online learning of an optimal treatment policy in mobile health.

The Imposteriors to Play at JSM Dance Party

The band The Imposteriors will play three sets of music during this year's JSM Dance Party and Lounge in Seattle, Washington, August 11 from 9:30 p.m. until midnight. To find out more about the group—which is made up of five statistics PhD academics who live in different cities—we asked them to tell us more about themselves.

BC = Brad Carlin, keyboards and vocals (University of Minnesota)

MG = Mark Glickman, bass and vocals (Boston University)

DH = Don Hedeker, guitars and vocals (The University of Chicago)

JH = Jennifer Hill, percussion and vocals (New York University)

MJ = Michael Jordan, drums and percussion (University of California at Berkeley)

How did The Imposteriors meet?

BC: Bayesians have a tradition of a "cabaret" performance of skits, funny songs, juggling, and so on following the closing banquets of big conferences, dating at least to the legendary a capella performance by George Box of his composition, "There's No Theorem Like Bayes Theorem" at Valencia 1 in 1979. I came on board at Valencia 4 in 1991. I had written a song called "Imagine" (a Bayesian spoof of the John Lennon original) and I managed to borrow the hotel band's keyboard so I could perform it, along with Rob McCulloch, Wally Gilks, Adrian Raftery, and some other guys doing an absurd The-Pips-Meet-Michael-Jackson dance line on the side. There were a couple other songs. Luis Pericchi helped me out on a borrowed acoustic guitar, and that was the beginning of the "Bayesian band."

Jose Bernardo knew I'd show up for all the Valencia meetings he organized and just assemble whoever was there (usually Mark and Jennifer included, going back to the 1990s) into the "house band" of Bayesian statistics. Jose would make sure all the right equipment was rented. He really deserves a lot of the credit for this becoming an ongoing thing.

Later, when the MCMSki meetings came about, the band started playing at non-Valencia meetings and was known as "IMSISBA," a meld of the names of the two organizations that sponsored MCMSki. We became The Imposteriors when Don joined the band just before the 2014 JSM talent show and suggested it; we all agreed immediately it was a great name for a Bayesian band!

We've grown accustomed to doing post-cabaret dance sets, where we just play up-tempo rock and roll so these Bayesians (who are naturally rowdy and have been sitting politely, drinking wine all through the cabaret) can finally get up and dance. So over time, we built up a group of people who were really comfortable playing with each other and who, in addition to the spoofs, also had a decent repertoire of dance songs. Stepping up to three full dance sets at JSM 2015 is the next challenge for us, but I think we're up to it!

When did the band officially form?

BC: I think I answered that above. It was just a couple friends and me in 1991, but I think Mark and Jennifer (who went to graduate school together at Harvard) were there at Valencia 5 in 1994.

If you go to YouTube and type in "Bayesian cabaret," you will see an enormous range of material, much of it with me playing keys and leading the band. We had various bassists and guitarists over the years, depending to some extent on where the meeting was (North America, South America, Europe, etc). There have also been several people (Tony O'Hagan, Jeff Rosenthal, Kerrie Mengersen, Mark Huber, Herbie Lee, Marian Farah, Rebecca Steorts, and others I'm forgetting) who have contributed songs and skits over the years and really can be depended on to bring one really good new spoof to nearly every one of these cabarets (which now happen somewhere at least once a year).

How did you come up with the name?

BC: Like I said, that was Don Hedeker's suggestion last summer, and we all liked it so much we launched the Facebook page the next day. Don is founder and leader of The Polkaholics, a Chicago-based punk-polka band, so is quite experienced with clever band promotion ideas.

How do you get together to practice?

BC: Excellent question! With the cabarets, I usually just got everyone together for 4–5 hours before the show and tried to throw everything together. We'll

The Imposteriors, from left: Michael Jordan, Don Hedeker, Brad Carlin, Jennifer Hill, and Mark Glickman

certainly get together in Seattle pre-show, but with three sets to arrange and all of us living in different major U.S. cities (Boston, New York, Chicago, Minneapolis, and Berkeley), we're taking advantage of an online practice program called JamKazam. It seems our computers and Internet connections make it possible!

How long have each of you played music on your own?

BC: Hmm, my mother made me take piano lessons from grades 4–7. At that time, I begged her to let me quit so I could take trombone lessons instead. I was mostly a trombonist in college, but I was also a keyboard player laying down chords for hot licks lead guitarists in bar bands in high school, college, graduate school, and beyond (more on this below). I've also been a singer in church choirs, glee clubs, and bands since I was in college.

MG: Even though I play mostly guitar and bass guitar for The Imposteriors, my main instrument is piano, which I started playing when I was 5. I was classically trained in piano, and took lessons until the start of college. When I was 12, I taught myself to play guitar so I could play along with my Beatles records (much more fun than playing guitar to my Beethoven records). Some friends in college and I wanted to form a dance band and we needed a bass guitarist, so that inspired me to learn bass guitar.

DH: I have been playing guitar in bands since high school, a long, long time ago.

MJ: I played in rock bands as a kid, playing just about every instrument except the drums. Then, there was a hiatus for many years. I got started again in music about a decade ago, when some friends gave me a drum kit as a birthday present, for no apparent reason, and I set it up in my basement and found myself enjoying learning to play it. It may be the one thing in my life at which I'm getting noticeably better year in and year out; with most everything else there's a slow decay.

JH: I think I'd prefer to remain the mysterious member of the band!

What was your first gig together, and how did it go?

BC: Well, for the current fivesome, I guess it would be the Talent Show last August. Ron Wasserstein said we co-won, so I guess it went well! I was really blown away by all the other acts as well; however, I've actually been a fan of the Fifth Moment's work at NCSU for quite some time.

DH: I joined The Imposteriors at last year's JSM talent show in Boston. It was a lot of fun and I thought it went well. I'm happy to be part of this band—everyone is so good.

How do you choose the music you cover?

BC: I think it's pretty "democratic" in that everybody contributes song ideas. Jennifer and Mike are the ones who keep us honest in terms of not just picking songs we love from our childhoods (because then there'd be way too much "classic" material). I mean a lot of that is great to dance to, but we have Cavedogs, Mana, Neon Trees, and Grouplove in the set for Seattle. Mark and I are more 70s/80s guys, so we'll bring the Beatles et al. And I'll probably try to talk Don into throwing in a polka or two.

MG: I suggest songs for the band to play based on a simple rule: If I find myself snapping my fingers and stomping my feet to a candidate song, then I'll suggest it to the band. More often than not, I'm right on target. When you hear us in August, you'll know which songs I suggested. (Hint: Check to see if you're snapping your fingers and stomping your feet.)

DH: Since I am the newcomer to the band, I let the others choose the songs.

MJ: I also like to go jogging, but, as anyone who has arrived at age 50 knows, the pleasure of exercise starts to become supplanted with the pain of exercise. Luckily, the iPod came out and I discovered that listening to music effectively combats the tedium of jogging. In particular, listening to new music keeps my mind engaged. So I have a pretty good awareness of all the great new music out there, and I tend to have many suggestions of covers that are not just the same old songs every cover band plays.

What is your greater passion, music or statistics?

BC: That's a tough one. I'm a big time Bayesian; everybody who knows me knows that. I love working in that area and talking and proselytizing about it. But music and playing in a band is different; it has some of the left-brain activity that Bayesian statistics is about (even simple rock songs have

form and structure), but it also brings a lot of the right-brain stuff that feeds your soul. When you're really locked in with other musicians you're performing with, it's as much fun as anything I've ever experienced. And it's something you can do when you're old; it's a better hobby than, say, rugby for that reason. I certainly expect I'll be playing in bands long after I'm no longer professor and chair of biostatistics.

MG: I am passionate about both music and statistics, but in different ways, so it is difficult to compare them directly. I think I'm better serving humanity by having statistics as my regular job and keeping music as a hobby. It might be an interesting undertaking to have music as a profession and keep statistical work as a hobby, but society frowns upon such experimentation.

DH: I'll never tell!

MJ: In my professional life, I find I never have enough time to get everything done that I'd like to get done, and that I'm always feeling rushed. In my musical life as a drummer, my job is exactly to avoid rushing. The two passions go together very well.

CONNECT
Like The Imposteriors on Facebook and see photos of the band in action: *www.facebook.com/imposteriors.*

Other than at JSM, where else have you performed together?

BC: I mentioned the MCMSki gigs. We actually got to perform with the Crash Test Dummies' guitarist at MCMSki 3 in Park City, Utah (that band was staying at our conference hotel that night and saw us in the ballroom). After the JSM dance party this August in Seattle, we're doing a gig at the ICHPS meeting in Providence, Rhode Island, in October, and also at MCMSki V in Lenzerheide, Switzerland, in January 2016. The next World ISBA meeting will be June 13–17, 2016, in Sardinia. So we don't gig that often, but when we do, the venues are sensational!

DH: The other members have a long history, but I just joined last summer, so the aforementioned JSM talent show was it for me. But beyond JSM 2015, there are plans for us to also play at ICHPS 2015 next October in Providence, Rhode Island. So, who knows? Maybe we'll eventually be on the stat-rock road to stardom!

Do you moonlight without the band?

BC: Yes, I'm in two other bands that get a fair amount of work. I grew up playing and singing in Methodist churches, so when I got to Minnesota, I added leadership of the house band for a left-wing Methodist church. That band has also gotten pretty good and now plays non-church coffee shop and bar gigs around the Twin Cities. Then, because my undergrad degree is from Nebraska, I also lead a Minnesotans for Nebraska pep band that plays at a local Husker bar every football Saturday. We have a lot of work when the Huskers play the Gophers, including driving down to Lincoln for 3–4 gigs when the game is there. So I'm lucky to be in three pretty good bands right now, all of which get work (though the Husker band only gigs in the fall!).

MG: Right now, The Imposteriors has my full loyalty. Who has time to be in another band when you're in The Imposteriors?

DH: Yes, I am the leader of a punk rock polka band in Chicago called The Polkaholics. We recently celebrated our 17-year anniversary of playing people-pleasing polka! Those interested can check us out on YouTube (just search for polkaholics) or our website at *www.thepolkaholics.com*. In the 1980s and early 1990s, I was the musical half of the poetry/music collaboration Algebra Suicide.

MJ: I play in a number of bands in the Bay Area, currently two: one that focuses on Latin music and another that focuses on rhythm and blues. It's one of the great features of the Bay Area that there's a plethora of all kinds of music.

What is your day job?

BC: I'm professor and head of the division of biostatistics at the University of Minnesota. I spend about half my time on divisional stuff and the other half doing everything else: teaching a little, advising PhD students, traveling, and writing grants. My plate is pretty full, but my boys are 22, 20, and 16 now, so two are out of the house and I no longer have to spend all my weekends driving them to soccer games and Scouts and so on anymore.

MG: I am research professor of health policy and management at the Boston University School of Public Health; senior statistician at the Center for Healthcare Organization and Implementation Research, a Veterans Administration Center of Innovation; and visiting professor at the department of statistics at Harvard University. I am everywhere and nowhere.

DH: I am a professor of biostatistics in the department of public health sciences at The University of Chicago.

MJ: I'm a professor in both the statistics and computer science departments at the University of California at Berkeley.

Where can we send requests for songs at JSM?

BC: Hah! I guess you can send them to me, but as I said, we're already maybe three-fourths done assembling the show, so get them in quickly!

MG: Please send requests to Brad, or to the "I Love The Imposteriors" fan club address … if you can find it. ■

Don't Let What Happens at JSM Stay at JSM!

How to get the most out of your first Joint Statistical Meetings

Christopher Bilder, University of Nebraska-Lincoln

FIRST TIMER

Christopher Bilder is a professor in the department of statistics at the University of Nebraska-Lincoln. He will be presenting the Continuing Education course "Analysis of Categorical Data" during JSM.

The largest congregation of statisticians in the world happens every August during the Joint Statistical Meetings (JSM). More than 6,000 people attend these meetings, which are sponsored by 11 statistical societies, including the American Statistical Association. The meetings offer a variety of activities such as attending research presentations, interviewing for jobs, taking professional development courses and workshops, and browsing the exhibit hall. With so many opportunities, new attendees can be overwhelmed easily by their first JSM experience.

Based on my familiarity with attending meetings over the last 15 years and the experiences of student groups I have led, I'm going to tell you how to get the most out of JSM. If you would like to share your own recommendations, I encourage you to submit a comment at *http://stattrak.amstat.org.*

Before JSM

Most new attendees who choose to present their research do so in a contributed session via an oral or poster presentation. The deadline to submit an abstract for acceptance into the program was in early February. For those who did this, additional proof of progress (e.g., drafts of a paper) for the presentation must be submitted by mid-May.

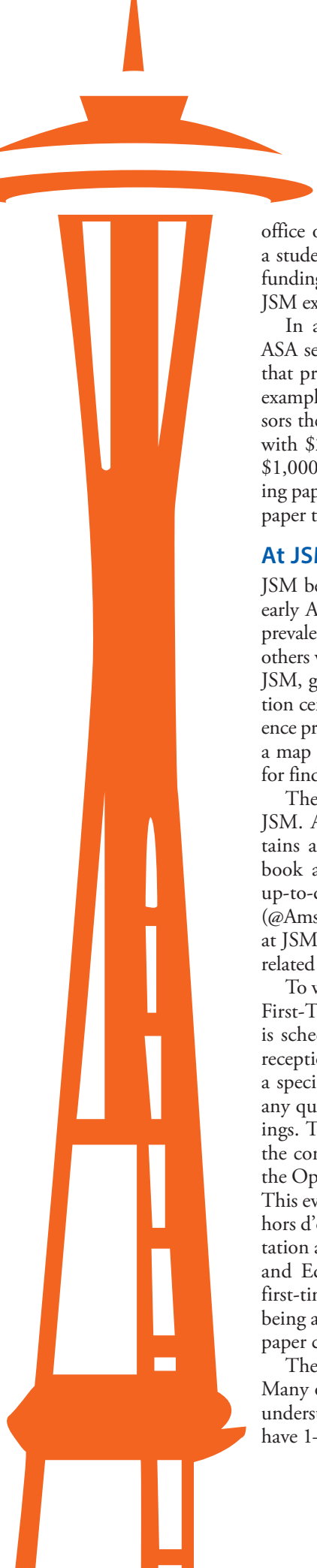
A preliminary program listing the presentation schedule is now available at *www.amstat.org/meetings/jsm/2015/onlineprogram*. Because there may be more than 40 concurrent presentations at any time, it is best to arrive at JSM with an idea of which to attend. This can be done by examining the session titles and performing keyword searches in the online program prior to JSM.

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

Poster presentations are also separated into invited, topic-contributed, and contributed sessions, with the vast majority in contributed sessions. These types of presentations involve speakers being available for questions next to their displayed poster during the entire session. Most posters are of the traditional paper format, but an increasing number now are in an electronic format. This latter format involves a large, high-definition TV that shows all at once or cycles through a small number of slides what would normally be printed on paper. Relatively new to JSM is a hybrid of an oral and poster presentation. The oral poster presentation component begins with a "speed session," in which five-minute presentations are given by each speaker. Later the same day, electronic posters are made available for these same presentations.

Online registration for JSM begins around May 1. For members of a sponsoring statistical society, the cost is $420 during the early registration period. The cost increases to $510 if you register at JSM. Registration for student members is only $100, and this rate is available at any time. Also starting around May 1, you can reserve a hotel room through the JSM website. A number of hotels near the convention center are designated as official conference hotels, and they discount their normal rates. However, even with a discount, you can expect to pay $200 or more per night for a room.

Attending JSM can be expensive. Students have several options to reduce the cost burden. First, ask your adviser or department for funding. Many departments offer financial support for students who present their research at JSM. Students also may qualify for funding from the student activities



office on their campus. For example, when I was a student, my department's statistics club received funding this way, which paid for most of my first JSM expenses.

In addition to school-based resources, many ASA sections sponsor student paper competitions that provide travel support to award winners. For example, the Biometrics Section of the ASA sponsors the David P. Byar Young Investigators Award, with $2,000 awarded to the winner and separate $1,000 awards given to authors of other outstanding papers. Most competitions require a completed paper to be submitted many months prior to JSM.

At JSM

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

There is a significant online presence during JSM. A main resource is the JSM app that contains all the information found in the program book and more. Also, the ASA posts the most up-to-date news about JSM through its Twitter (@AmstatNews) and Facebook accounts. Attendees at JSM most can use #JSM2015 to tag their JSM-related posts.

To welcome and orient new attendees, the JSM First-Time Attendee Orientation and Reception is scheduled for early Sunday afternoon. At this reception, docents will be present (identified with a special ribbon on their name badge) to answer any questions that you may have about the meetings. These docents will be available throughout the conference as well. Later on Sunday evening, the Opening Mixer will be held in the exhibit hall. This event is open for all attendees and drinks and hors d'oeuvres will be served In between the orientation and the mixer, the ASA Awards Celebration and Editor Appreciation session is held. Many first-time attendees are honored during it due to being awarded a scholarship or winning a student-paper competition.

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

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

Introductory overview lectures are another type of session that has easier-to-understand topics. Recent lectures have included introductions to Big Data, bioinformatics, and complex survey sampling. There are also many Professional Development courses and workshops available for an additional fee. However, you can attend a course for free by volunteering prior to JSM to be a monitor. Monitors perform duties such as distributing and picking up materials during the course. As an added benefit, monitors can attend one additional course for free without any duties. Those who are interested should contact Rick Peterson at *rick@amstat.org*.

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

In addition to presentations, the JSM exhibit hall features more than 70 companies and organizations exhibiting their products and services. Many exhibitors give away free items (e.g., candy, pens, etc.). All the major statistics textbook publishers and software companies are there. Textbook publishers usually offer a discount on their books during JSM and often for a short time after. The exhibit hall also includes electronic charging stations, tables that can be used for meetings, and it's the location of the poster presentations.

The JSM Career Service provides a way for job seekers and employers to meet. Pre-registration is required, and the fee is discounted if you register before mid-July. The service works by providing an online message center for job seekers and employers to indicate their interest in each other. Once a common interest is established, an interview can be arranged for during the meetings.

Other activities at JSM include the following:

- Shopping at the ASA Marketplace to purchase a statistics-themed T-shirt or mug
- Attending an organized roundtable discussion during breakfast or lunch about a topic of interest (pre-registration is required)
- Taking a little time off from JSM for sightseeing or attending a sporting event; for example, both the Mariners baseball team and the Association of Volleyball Professionals tour will be in Seattle during JSM

Important Links

First-Time Attendees: *www.amstat.org/meetings/jsm/2015/firsttimeattendees.cfm*

JSM 2015: *www.amstat.org/meetings/jsm/2015/index.cfm*

Online Program: *www.amstat.org/meetings/jsm/2015/onlineprogram*

Job Seekers: *www.amstat.org/meetings/jsm/2015/careerservice.cfm*

Professional Development: *www.amstat.org/meetings/jsm/2015/professionaldevelopment.cfm*

Student Paper Competitions: *www.amstat.org/sections/studentpaperawards.cfm*

After JSM

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

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

Typical Tourist or Savvy Seattleite? The Choice Is Yours

David Kerr and Members of the Puget Sound Chapter of the ASA

Seattle is an amazing city, both for those who live there and for tourists to the Emerald City. There are so many things to do; some are a bit cliché, while others fly under the radar. What follows are activities traditionally done by visitors (but still fun) complemented by activities better known to the locals. All are within one mile of the convention center and central hotel district.

EDITOR'S NOTE: Prices shown were found on the websites in March of 2015 and are subject to change.

	Typical Tourist	Savvy Seattleite
SeaTac Transit You'll need to make your way into town from SeaTac Airport (short for Seattle – Tacoma) and you've got options …	A taxi from SeaTac is a fine way to go—unless you become stuck in the traffic on I-5 (which is often) or you're on a budget. **~$50**.	The light rail picks you up from the airport parking garage, with trains running at least every 10 minutes. It takes 38 minutes to get to Westlake Station, which is near most hotels. (*http://bit.ly/1cvYeRN*) **$3/person**
Get On the Sound! Seattle is located along Puget Sound, and it's always a treat to get on the water and see the contrast of the downtown skyscrapers and working port compared to the picturesque Olympic Mountains.	Argosy Cruises runs many boats from the waterfront, including one boat that brings you to dinner at Tillicum Village on Blake Island where you can enjoy an authentic Native-American dinner and show. (*www.argosycruises.com*) Harbor cruise **$23,** locks cruise **$37,** Tillicum Village cruise and dinner **$80)**	The Washington State ferry system serves thousands of visitors and commuters daily. Board as a walk-on passenger from the downtown Seattle terminal and take the one-hour ride to Bremerton to see the same sights as a private cruise, but for a fraction of the cost. Either immediately return on the same boat or take an hour to get a meal and explore the Bremerton waterfront. (*www.wsdot.wa.gov/ferries*) Walk-on round trip to Bremerton **$8**
Microsoft Founder Dream Projects Boeing, Amazon, Costco, and Starbucks all started or are headquartered around Seattle, but the company founded by Paul Allen and Bill Gates probably still wields the biggest influence in town.	Paul Allen's EMP Museum (Experience Music Project) focuses on rock and roll, science fiction, and pop culture. Recent exhibits have included Jimi Hendrix's guitars and Princess Leia's gold bikini. (Paul also founded the Allen Institute for Brain Science and owns the Seattle Seahawks—Go Hawks!) (*www.empmuseum.org*) **$21**	The Bill & Melinda Gates Foundation focuses on education, health, and poverty on a global scale. Located across the street from the EMP, the visitor center of the Gates Foundation allows for thought-provoking discussion about what our responsibility should be to others and where to focus priorities. Try your hand at carrying 16 pounds of water back to your village! (*www.gatesfoundation.org/Visitor-Center*) **Free**
Explore Seattle's History Pioneer Square shows off the history and architecture of the early days of Seattle.	Bill Speidel's Underground Tour explores the tawdry history of Seattle. After the Great Seattle Fire in 1889, the city decided to regrade the streets one or two stories higher than the original. This tour lets you explore the original ground level, which is now hidden from view. (*http://undergroundtour.com*) **$18**	There is a national park located in Pioneer Square—the Klondike Gold Rush National Historical Park. See the amount of goods prospectors were required to carry with them in the late 1890s and learn about their treacherous journey (many simply stayed behind in Seattle and helped found the city). Sometimes thought to be the smallest national park, it's technically combined with the large Alaskan portion of the park. (*www.nps.gov/klse/index.htm*) **Free**

	Typical Tourist	Savvy Seattleite
SAM I Am The Seattle Art Museum showcases world-class art.	The Seattle Art Museum is located in the heart of downtown and has a large and varied permanent collection and rotating exhibitions, including local Native-American art. (*www.seattleartmuseum.org/visit/seattle-art-museum*) **$20,** closed on Mondays and Tuesdays)	It's August in Seattle. No one should be inside any longer than needed! Walk through the Olympic Sculpture Park (run by the Seattle Art Museum), which is filled with sculptures, and toward Elliott Bay and amazing views of the waterfront and Olympic Mountains. (*www.seattleartmuseum.org/visit/olympic-sculpture-park*) **Free**
Pike Place Market Operating since 1907, this is Seattle's heart—with fish, flowers, meat, vegetables, and arts and crafts. And don't ever, ever, call it "Pike's Place."	The typical tourist goes to Pike Place Fish Market, sees the fish thrown from one employee to another, and leaves. (*www.pikeplacefish.com*) Photos are free, but there are claustrophobia-inducing crowds	Go downstairs to the quieter levels of the market and explore the quaint shops. And take a picture of the Market Theater Gum Wall on Post Street. It's what it sounds like—an entire block with thousands and thousands of pieces of gum stuck to the walls of the alleyway. Take a photo and add your own piece of history.
Seattle Homegrown Treats Seattle has a fine "foodie" tradition—buying local and innovative creations. Hopefully, you'll be able to get out to a meal serving local seafood. Here are two local institutions at Pike Place Market.	The first Starbucks opened in Pike Place Market in 1971. The store location at 1912 Pike looks historic (but crowded with tourists), although it's not really the first store. But you can get Starbucks coffee nearly everywhere in the world (and at hundreds of locations in Seattle), so do you really need to go to this one?	Go a bit down the street to Beecher's Handmade Cheese. Watch the cheese being made, grab some samples, and buy some of their Flagship and the cheese curds—yum! *www.beechershandmadecheese.com*) And wander through the rest of Pike Place for more examples of tasty, homegrown food.
Adult Beverages Made Onsite Along with our coffee craving, Seattleite's enjoy "potent potables"—especially when they're created and served at the same location.	There are plenty of brewpubs in Seattle, and Pike Brewing is one of the most well known and centrally located. Enjoy a pint of the Pike Kilt Lifter alongside ribs or bratwurst. (*www.pikebrewing.com*)	Distilleries are becoming more and more popular in town. Try Sun Liquor Bar & Distillery at 512 East Pike (at the edge of Seattle's hip, but gentrifying, Capitol Hill neighborhood) and enjoy a cocktail mixed with their Hedge Trimmer Gin or Unxld Vodka. (*http://sunliquor.com*)
Get High (no, not *that* high) There are many great views to be had. But for the best, you need to elevate. P.S. For the other high, adults in Washington can now purchase marijuana from licensed stores. Be responsible and learn the rules!	The Space Needle offers great views from 520 feet up. But locals only go up the Needle when relatives are in town. (*www.spaceneedle.com/home*) **$21** The Seattle Great Wheel (a giant Ferris Wheel) on the waterfront admittedly is a bit touristy, but still fun. (*http://seattlegreatwheel.com*) **$13**	Nearly twice the height of the Space Needle, the Sky View Observatory at the top of the Columbia Center is right in downtown and has views from 900 feet, the tallest public viewing area west of the Mississippi. (*www.skyviewobservatory.com)* **$13.** About two miles from downtown is Kerry Park, which provides the prototypical Seattle viewpoint—including Space Needle, downtown skyscrapers, and Mt. Rainer. (211 W. Highland Drive) **Free**
Seattle Center The site of the 1962 World's Fair, Seattle Center is the home of the Space Needle, Science Center, and EMP. But there are plenty of other things to do.	Take the Monorail from Westlake Park to get to Seattle Center (*www.seattlemonorail.com*) **$2.25** and explore the Chihuly Garden and Glass, which features the innovative artwork of Dale Chihuly. Pretty amazing glass sculptures of all kinds are to be found. (*www.chihulygardenandglass.com*) **$18**	Enjoy your one-mile walk up 4th Avenue to Seattle Center and wander through the Armory Building for a quick, cheap eat. And then just lounge by the International Fountain and soak up the sun—like us sun-starved locals who know to enjoy blue skies when we can.

Keep up to date with the latest JSM news by following us on Twitter @AmstatNews. Use #JSM2015.

In Response to 'Statistics as a Science, Not an Art: The Way to Survive in Data Science' by Mark van der Laan

MORE ONLINE
Read "Statistics as a Science, Not an Art: The Way to Survive in Data Science," at *http://magazine.amstat.org/blog/2015/02/01/statscience_feb2015.*

Dear *Amstat News*,

A February 2015 *Amstat News* article by Mark van der Laan expresses dismay at "giving up on the scientific standard of estimation based on a true statistical model" and urges us to define estimands honestly. According to van der Laan, "it is complete nonsense to state that all models are wrong" and "estimators of an estimand defined in an honest statistical model cannot be sensibly estimated based on parametric models."

In my experience, there are indeed problems for which all models are wrong and for which parametric models are useful. For example, take a large data set collected at the Harvard Forest of soil respiration (carbon flux from the Earth into the atmosphere) and possible predictors. Investigators want to understand the drivers of soil respiration. Flux varies from place to place and time to time. It depends on exactly what we call the boundaries, in both space and time, of what we call the study region, which has, in fact, fuzzy boundaries. There was no random sampling within that fuzzy region. And even if we could precisely define a study region, we really want to understand the drivers of respiration in the wider world, not just in the study region.

In this problem, there is no true model and no true estimand, no matter how flexible and nonparametric. Yet there is a clear, nearly linear relationship between log(flux) and soil temperature. It is useful to point that out, to point out the ways in which a simple linear model can be improved by adding effects for type of forest, time of year, and other predictors—by pointing out where the nonlinearities are, by pointing out how residuals deviate from the ideal, and so forth, for all the things a good statistician would do with a regression problem.

The soil respiration data set, and many others in my experience, require us to keep many models in mind, knowing that none are true, but understanding and quantifying their strengths and weaknesses. A call to find a true model and a true estimand does not accord with my understanding of this ecological problem and the inference it requires.

Sincerely,
Michael Lavine

Dear *Amstat News*,

Mark van der Laan worries that a "lack of rigor that has developed in our field" may result in the marginalization of the statistics profession in relation to the emerging field of data science. I emphatically agree with the following:

(1) Statisticians should seek to understand the scientific question, formulate the statistical objective accordingly, and follow an analysis strategy that is fit for purpose. We too often fail, by reaching instead for a statistical model motivated by familiarity, mathematical convenience, or the availability of software.

(2) Estimation is often more scientifically meaningful than null hypothesis testing. A p-value can be made "statistically significant" with a large enough sample size, without regard to clinical or practical significance. As Tukey (1991) said, two groups will always be different at some decimal place.

(3) Statisticians should rely sparingly on fully parametric models and "idiosyncratic model selection," but consider integrating the perspectives and algorithms of other fields, such as machine learning.

However, I cannot go along with the author on much else.

Van der Laan defines statistics as "the science of learning from data." If so, our profession should study others who have been successful at learning from data. However, statisticians have shown little interest in the role of data in the process of discovery and invention in the history of science and engineering, though a few exceptions exist (e.g., Box, 1999, on the Wright brothers; MacKay and Oldford, 2000, on the speed of light; Freedman, 2010, on examples from medicine and epidemiology). Statisticians

need to hear Hamlet's message: "There are more things in heaven and earth than are dreamt of in your philosophy."

In particular, van der Laan is upset with the classic George Box quote, "Essentially all models are wrong, but some are useful," which he dismisses as "complete nonsense." He says that this quote has been used to justify the use of statistical models based on unrealistic assumptions that are known to be wrong. Instead, he speaks often of a "true" or "actual" model, in the form of a probability distribution. He illustrates the alleged folly of using wrong models with the example of building a spacecraft, where simplifying assumptions "would mean the death of the astronauts and certainly the failure of their mission."

The spacecraft example actually undermines van der Laan's own line of reasoning. Consider the spacecraft's attitude control system, which prevents the ship from tumbling (thus maintaining communications antennae and/or solar panels in alignment with the Earth or sun). In a standard text like Hughes (2004), the theory of attitude dynamics is presented using Newtonian mechanics, without reference to quantum theory or special and general relativity. Classical Newtonian mechanics are known to be wrong with respect to the latter theories of physics, but using "modern physics" to model attitude dynamics would be unnecessarily complex and mathematically and computationally intractable. The use of Newtonian physics here provides approximate answers to the right questions, to borrow another phrase from Tukey (1965).

The history of science and engineering is littered with other examples. In optics, we have a choice of at least three models of light, in order of decreasing simplicity (and increasing correctness): geometrical optics (a ray theory of light), physical optics (a wave theory of light), and quantum optics (a photon theory of light, including wave-particle duality). All three continue to be used today, depending on the problem at hand. In fluid dynamics, we often deliberately model fluids as continuous materials, though we know they really consist of discrete molecules. In meteorology, the Lorenz (1963) model, a deliberate oversimplification of the equations of motion for thermal convection in the atmospheric boundary layer, provides groundbreaking insights into the consequences of nonlinearity for weather prediction.

In these examples, subject matter knowledge determines which model is sufficiently useful and fit for purpose for a given problem or question. At some level, all these models are "wrong," but they can all be useful, depending on the context. George Box was right.

With regard to Big Data, many large data sets are not the results of designed experiments or surveys, and a random data-generating process may fail to be a plausible assumption. In some cases, the use of any probability model, even as a surrogate for our ignorance (as in queuing theory or in the kinetic theory of gases) may become questionable. Beware of the ludic fallacy (Taleb, 2007), wherein a probability model is neither right nor useful, though possibly harmful. Since a probability distribution remains central to van der Laan's notion of a "true" model, I wonder if his concepts are too narrow to deal with the whole spectrum of Big Data problems in circulation today.

The views expressed here are mine alone, and do not necessarily reflect the policies, views, or opinions of my employer.

Sincerely,
Christopher Tong

Tong's Further Reading

Box, George E. P. 1999. Statistics as a catalyst to learning by scientific method Part II—A discussion. *Journal of Quality Technology* 31:16–29.

Freedman, David A. 2010. *Statistical models and causal inference.* New York, NY: Cambridge University Press.

Hughes, Peter C. 2004. *Spacecraft attitude dynamics.* Mineola, NY: Dover.

Lorenz, Edward N. 1963. Deterministic nonperiodic flow. *Journal of the Atmospheric Sciences* 20:131–140.

MacKay, R. J., and R. W. Oldford. 2000. Scientific method, statistical method, and the speed of light. *Statistical Science* 3:254–278.

Taleb, Nassim Nicholas. 2007. *The black swan: The impact of the highly improbable.* New York, NY: Random House.

Tukey, John W. 1965. The future of data analysis. *Annals of Mathematical Statistics* 33:1–67.

Tukey, John W. 1991. The philosophy of multiple comparisons. *Statistical Science* 6:100–116.

Response to Letters by Michael Lavine and Christopher Tong

Mark van der Laan

Let me start by stating that I am highly appreciative of the letters to the editor by Michael Lavine and Christopher Tong. Our field badly needs discussions on these important points. I view these letters as a constructive start of such a discussion.

Both authors disagree with my criticism of the statement by George Box that all models are wrong, but some are useful—a statement made in a historical context in which parametric models were the norm. Given that different notions of the word model are used, both within our discipline as well as across disciplines, it is important to first clarify that I refer to so-called statistical models defined as the set of possible probability distributions of the data.

The statistical estimation problem only depends on the statistical model, while the possible additional nonstatistical assumptions are often used to define interesting underlying quantities of interest and corresponding identifiabilty results that then define the statistical estimand of interest. As long as one is willing to assume the data were a result of an experiment, then that data has a probability distribution, and one can always define the model as the set of all probability distributions, which is a true model (i.e., it contains the true probability distribution of the data). We should be pursuing real statistical knowledge that restricts the statistical model, but does not exclude the true distribution.

If one observes a single gene expression profile, and one does not know much about the joint distribution, then one should state the true model and thus acknowledge that it serves no point to fool each other with statistical inference based on a model that assumes all gene expressions are independent.

Michael Lavine and Christopher Tong point out that there are applications in which models, even when not true, can be very useful, and they use, in particular, the Newtonian models in physics as an example. These examples of models in physics demonstrate a parametric model that is highly accurate in describing the observed data, a situation we simply do not encounter in our typical biostatistical applications. However, even in this setting, in which the data are a result of a very well-understood experiment, if in a particular application the observed data would contradict this parametric model, then it is my view and I presume the view of physicists that one should carry out statistics in a statistical model that contains the true probability distribution of the data. This allows one to honestly learn from the observed data and thereby move science forward in potentially very exciting directions: There is no benefit in obstructing the view of reality. This does not mean that a particular working model (i.e., a submodel of the true statistical model) is not of interest and possibly of great interest when it represents a highly accurate description of the data-generating distribution. For example, it will be good to know what the best fit of this working model is to the actual data and to test for specific deviations of this working model, but all of this should be done in the context of a true statistical model.

The importance of developing theory within a true model, relative to developing theory in a wrong model, is already easily illustrated with the simplest of all examples. Suppose that one fits a univariate linear regression model using least squares regression. A typical textbook will teach you that using weighted least squares linear regression can improve the efficiency of the estimator, but does not change the estimand. Of course, the true relation between the two variables is not linear. As a consequence, a weighted least squares regression is fitting the projection of the true curve on the set of all lines, and the choice of weights defines the norm used to define the projection. Thus, a different choice of weights targets a different line, and, in fact, the choice of estimator of the desired weights will affect the

variability of the estimator of the intercept and slope.

Same story applies to generalized estimating equations for generalized linear models, in which the choice of model for the covariance matrix of the residuals affects the definition of the estimand and the variance of the estimator in a far different manner than predicted by theory that assumes the model is correct. That is, we are teaching nonsense to our students by telling them theory that only holds under a model we all know is wrong instead of teaching them about the real world.

Let's consider the example mentioned by Michael Lavine in which he argues log(flux) will approximately linearly depend on soil temperature and that linear regression techniques are useful even though these models are wrong. If, indeed, we know the mean of log flux conditional on temperature and other variables follows a semiparametric regression model with a linear term and unspecified function of the other variables, without interactions between temperature and these other variables, then that is the model, but if that cannot be defended, then we have to state an even more nonparametric model. Starting out with a wrong (e.g., fully linear) model and then testing if adding terms make a difference and proceeding with the modified model as if true is bad practice, although taught to our students. Forcing the choice of model to be truthful also forces one to define the target parameter of interest instead of letting it be defined by a coefficient in a misspecified model.

Dr. Tong does not support my description of our field as the science of learning from data since, according to him, statisticians have shown little interest in the role of data in the process of discovery and invention in the history of science and engineering. As I argued in my piece, we statisticians have the responsibility to be an intrinsic part of scientific teams, so that the statistical methods and theory we develop and employ actually target the answer to the scientific question and thereby fully serve science. So yes, in many ways we have failed, but a good start in improving our standing is to be very clear about our role and advance our methods accordingly. The targeted learning approach respects the true meaning of model and target parameter and defines a roadmap that can be employed in any scientific setting while fully respecting the science.

Dr. Tong also wonders if assuming the existence of a true probability distribution of the data is too narrow to deal with the whole spectrum of Big Data problems. Let me first clarify that the existence of a probability distribution of observed data does not require a designed experiment; it just requires an experiment, possibly a natural experiment such as simply observing wildlife in a large area. It is true that we are moving away from experiments defined by taking a random sample from a target population and getting more into experiments generated by total populations of connected individuals. To interpret this data, it will be absolutely necessary that we understand the experiment that generated the data, as much as possible, define the scientific questions, and establish if they are identifiable from the data. That is, we need to define the statistical model and estimand. We might learn that we need to improve and target our designs and advance statistical theory and methodology—and all that will be progress. ■

sectionnews

Biometrics

Edited by Sheng Luo, Biometrics Section Publications Officer

The Biometrics Section will sponsor two Continuing Education courses and six invited sessions at the 2015 Joint Statistical Meetings in Seattle, Washington. To view the list of courses and invited sessions, as well as the winner of the travel awards and Byar Young Investigator Award, visit *http://bit.ly/1EXsH5y*.

The section also invites applications for funding to support initiatives developing outreach projects focused on enhancing awareness of biostatistics among quantitatively talented U.S. students. Of particular interest are projects that encourage students to pursue advanced training in biostatistics.

For more information, contact the strategic initiatives subcommittee chair, Roslyn Stone, at *Roslyn@pitt.edu.*

Career-Development Award

The section sent out a call for proposals on postdoctoral career-development opportunities in December 2014. These were applications for funding to support career-development efforts for assistant professors or associate/full professors interested in moving into a new research area.

The ad-hoc committee chose Diana Miglioretti as representative of Radiological Society of North America (RSNA) Biostatistics Faculty to be awarded funds for a biostatistician interested in conducting methodological or collaborative research in radiology/imaging clinical trials and attend the RSNA Clinical Trials Workshop in January 2016. The workshop will help RSNA biostatistics faculty members mentor and train a biostatistician in the relevant methodology and art of collaborating with radiologists and imaging specialists.

The career-development ad hoc committee was composed of Mike Daniels, Joe Hogan, and Jonathan Schildcrout.

For more information about the section, read its latest news and updates at *www.bio.ri.ccf.org/Biometrics.*

Government Statistics

The Government Statistics Section (GSS) will sponsor a data challenge in 2015. The contest, which challenges participants to analyze a public data set using any statistical and/or visualization tools and methods, is open to anyone, including college students and professionals from the private or public sector.

The data set is the U.S. Census Bureau's tract and block planning databases.

Eight contestants will present their work in two sessions during JSM 2015 in Seattle. Four will give oral presentations in a topic-contributed session, while another four will give poster presentations as part of the GSS speed session.

There will be two $500 awards given, one for students and one for professionals.

The topic-contributed session is scheduled for August 12 from 2:00 p.m.–3:50 p.m. and includes the following presentations:

Tailoring Outreach to Boost Mail Self-Response in Geographic Areas with Similar Low Response Rates—*Darryl Creel*

Exploring the Census Bureau's 2014 Planning Database Using Topological Data Analysis—*Robert Baskin*

Informing Natural Disaster Response with Census Data—*Jonathan Auerbach*

Optimizing Survey Cost-Error Tradeoffs: A Multiple Imputation Strategy Using the Census Planning Database—*Shin-Jung Lee*

The speed session will take place August 12 from 8:30 a.m.–10:20 a.m. and include the following presentations:

Who Are the Nonvoters?—*Bingchen Liu*

Census Tract-Level Disparities: Examining Food Swamps and Food Deserts—*Lucy D'Agostino McGowan*

Exploring the Modifiable Areal Unit Problem—*Talha Ali*

Determinants of Poverty in U.S. —*Guillermo Basulto-Elias*

We hope you will support Data Challenge 2015 by coming to these sessions in Seattle.

Mental Health Statistics

Donald Hedeker, Nicholas Horton, Susan Marcus, and Emily Scherer

The section recently completed its second annual student paper award competition, organized by Susan Marcus. The first-place winner is Elisa Sheng of the University of Washington for her paper, "Estimating Causal Effects of Treatment in RCTs with Provider and Subject Noncompliance." Honorable mentions were given to the following:

Trang Quynh Nguyen of Johns Hopkins Department of Mental Health for **"Causal Mediation Analysis with a Binary Outcome and Multiple Continuous or Ordinal Mediators: Simulations and Application to an Alcohol Intervention"**

Wenjing Zheng of the University of California, San Francisco/ Berkeley for **"Marginal Structural Models with Counterfactual Effect Modifiers: A Twist to a Familiar Story"**

Nicholas Henderson of the University of Wisconsin, Madison for **"AR(1) Latent Class Models for Longitudinal Count Data"**

JSM 2015

Section program chair, Nicholas Horton, and program chair-elect, Zhehui Luo, put together a slate of talks and roundtables. Invited sessions sponsored and co-sponsored by the section include the following:

Recent Advances in Diagnostic Classification Models

Statistics in Imaging: Open Problems

Making Better Decisions: Recent Statistical Advances and Challenges in Aging and Dementia Research

Functional Data Analysis in Medical Imaging

Differential and/or Biased Missingness: Myths, Methods, and Manifestations

Recent Advances in Mental Health Clinical Trial Design: Statistical Challenges and Opportunities

Sponsored and co-sponsored roundtables include the following:

Closing the Research Practice Gap in Personalized Medicine, led by *Eric Laber of North Carolina State University*

Applying Item Response Theory to Develop and Improve Patient-Reported Outcome Measures, led by *Lan Yu of the University of Pittsburgh*

Statistical and Study Design Issues in Clinical and Translational Research, led by *Mohammad Rahbar of UT Health*

How to Get Involved with ASA Activities and Network, led by *Douglas Gunzler of Case Western Reserve University*

Be sure to join us at our business meeting August 11 from 5:00 p.m.–6:30 p.m. You will hear the state of the section reports from the executive committee and mingle with fellow mental health statisticians. Light refreshments will be served, and all section members and friends are welcome.

About Us

Having recently celebrated our two-year anniversary, the Mental Health Statistics Section aims to provide a forum for communication among statisticians and mental health researchers, facilitate development and use of sound statistical methodologies in mental health research, and promote career opportunities for statisticians in mental health research.

We are organizing a webinar on longitudinal data analysis of categorical outcomes, to be conducted by Section Chair Don Hedeker. Be sure to visit the website at *http://community.amstat.org/mhs/home* for details about this and other activities.

Quality and Productivity

The Quality and Productivity Section will host several roundtable events at JSM 2015. These intimate sessions encourage deeper discussions with roundtable leaders on topics of interest. This year's topics include a wide range of areas within industrial statistics, including statistical process control, statistical engineering, and design of experiments, along with additional challenges practitioners face such as outsourcing and manufacturing systems.

The Role of Confirmation in Designed Experiments, led by *Willis A. Jensen of W.L. Gore & Associates*—Throughout the literature on design of experiments, the need to perform confirmation runs has been emphasized repeatedly. We

provide a high-level framework for design of experiments and discuss how the confirmation phase is becoming increasingly important. However, the literature provides little guidance for assessing the confirmation runs or how many confirmation runs to perform. We will discuss the following four questions:

1. Why is confirmation needed in practice?
2. How do I know the confirmation is successful?
3. How many confirmation runs are needed?
4. What if I fail the confirmation?

Quality Anyone? Statistical Process Control to Make Better Decisions and Get Your Process Under Control, led by *Erin Tanenbaum of NORC at the University of Chicago*—This roundtable will focus on statistical process control (SPC) fundamentals and how statisticians use them to understand and improve process quality or timeliness. Whether in manufacturing, market research, health care, or other disciplines, use of SPC charts provide a structured approach for data analysis and dissemination of results. Participants are encouraged to bring their experiences or questions, as the challenges and rewards of using SPC will be discussed. Common misconceptions related to SPC philosophy, methods, and techniques also will be discussed, along with the challenges of carefully crafting a proper outcome measure. Attendees will gain an appreciation for how SPC can be applied to develop a better understanding of any type of process.

Statistical Engineering: Talking the Language of Impact, led by *Christine Anderson-Cook* and *Brian P. Weaver of Los Alamos National Laboratory*—The results of statistically sound data collection and analysis are sometimes misunderstood and not well received by nonstatisticians because of a potential disconnect between what was found and what difference it makes going forward. In this roundtable, we will discuss strategies for increasing the impact of statistical methods on the problems they tackle. By focusing on return on investment, cost reduction, efficiency, quality improvement, and reliability, statisticians' messages can resonate more with colleagues and they can play important roles as part of problem-solving teams. Examples of successes will be described from our experiences at Los Alamos National Laboratory.

Considerations, Challenges, and Opportunities in the Use of Outsourced Statisticians for CMC Statistical Support, led by *Benjamin Ahlstrom of Amgen, Inc.*—A trend in industry is the outsourcing of various corporate functions. In the biopharmaceutical and medical device sector, outsourcing has been used for clinical research through the use of contract research organizations (CROs). On the manufacturing and quality side of the business (chemistry, manufacturing, and control—CMC), contract staff have been used to perform statistical analyses to a lesser extent, while in-house statisticians have been employed more widely. However, the potential exists for the expanded use of statisticians contracted from outside organizations and located either onsite or offsite. The purpose of this roundtable

is to discuss considerations, challenges, and opportunities in the use of contract statisticians within the quality or manufacturing organizations in a biopharmaceutical or medical device company.

Quality Excellence in Design and Manufacturing: A Roadmap to Customer Delight, led by *Daksha Chokshi of Aerojet Rocketdyne*—Quality excellence in both design and manufacturing are keys to the success for any business in delighting the customers with products that meet or exceed their expectations. This roundtable will explore important linkages, protocols, and lessons learned from successful manufacturing and Six Sigma design applications. In particular, the cost of a design change made in the engineering phase prior to release to manufacturing is much lower than the same change if it is made after the design is released to manufacturing. The importance of using the right tools for the right applications in manufacturing and design will be stressed. We also will discuss understanding the influence design choices have on achieving a robust manufacturing system.

Statistics in Epidemiology

The Statistics in Epidemiology Section will sponsor a JSM short course on the joint modeling of longitudinal and survival data, taught by Joseph G. Ibrahim, on August 10 from 8:30 a.m. – 5:00 p.m. For registration and pricing, please check the JSM 2015 website at w*ww.amstat.org/jsmregistration.*

This short course will examine in-depth statistical methods for joint modeling of longitudinal and survival data. Both frequentist and Bayesian approaches will be discussed. The types of joint models we'll cover include trajectory models and shared parameter models. Both linear mixed models and generalized linear mixed models will be discussed for the longitudinal models, while Cox-type and cure rate models will be discussed for the survival component. Both univariate and multivariate survival models will be discussed, as well as multivariate longitudinal models. Several types of applications will be covered, including ones in cancer and AIDS research. Missing data issues will be examined, and SAS software for fitting joint models will be illustrated.

Ibrahim is the Alumni Distinguished Professor of Biostatistics at the The University of North Carolina Gillings School of Global Public Health. He has published more than 260 research papers, most of which are in top statistical journals. He has written two books at the advanced graduate level on Bayesian survival analysis and Monte Carlo methods in Bayesian computation. He is a fellow of the ASA and Institute of Mathematical Statistics and an elected member of the International Statistical Institute. ■

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

A Workshop for Experienced Teachers

Sponsor: ASA-NCTM Joint Committee on Curriculum in Statistics and Probability

Wednesday, August 12, 2015 | 8:00 a.m. – 4:30 p.m. | Seattle, Washington

The ASA/NCTM Joint Committee is pleased to sponsor a Beyond AP Statistics (BAPS) Workshop at the annual Joint Statistical Meetings* in Seattle, Washington, August 12, 2015. Organized by Roxy Peck, the BAPS Workshop is offered for AP Statistics teachers and consists of enrichment material just beyond the basic AP syllabus. The course is divided into four sessions led by noted statisticians. Topics in recent years have included experimental design, topics in survey methodology, multiple regression, logistic regression, what to do when assumptions are not met, and randomization tests.

Cost

The fee for the full day is $50. Attendees do not need to register for the Joint Statistical Meetings (JSM) to participate in this workshop, although there is discounted JSM registration for K–12 teachers available at *www.amstat.org/meetings/jsm/2015*.

Location

Seattle, Washington, Washington State Convention Center or nearby hotel (meeting room location to be announced)

Provided

- Refreshments (lunch on your own)
- Handouts
- Pass to attend the exhibit hall at the Joint Statistical Meetings
- Certificate of participation from the ASA certifying professional development hours
- Optional graduate credit available

Registration

More information and online registration is available at *www.amstat.org/education/baps*. Registrations will be accepted until the course fills, but should arrive no later than July 21, 2015. Space is limited. If interested in attending, please register as soon as possible.

Questions

Contact Rebecca Nichols at *rebecca@amstat.org* or (703) 684-1221, Ext. 1877.

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

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

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

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

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

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

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

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

Colorado

■ Business Analytics: Assistant or Associate Professor (or Visiting Professor) of Business Analytics, University of Colorado Denver. Full-time, tenure-track 9-month faculty position starting fall, 2015; 40% teaching; 40% research; 20% service. Teaching load consists of 4, 3-hour courses during 9-month contract. Requires: PhD in statistics or closely related field. For full description, requirements, and application process, go to *www.jobsatcu.com/postings/95175.* The University of Colorado is committed to diversity and equality in education and employment. The university is committed to recruiting and supporting a diverse student body, faculty and administrative staff. The university strives to promote a culture of inclusiveness, respect, communication and understanding. We encourage applications from women, ethnic minorities, persons with disabilities and all veterans.

Florida

■ Senior Faculty Biostatistician. The Health Informatics Institute at the University of South Florida is seeking an associate/full professor in biostatistics to fill a non-tenure earning position as a senior biostatistician. Funded as a data coordinating center for several large clinical networks and actively participates in the design and conduct of epidemiological studies and clinical trials. Please visit: *www.usf.edu/about-usf/work-at-usf.aspx* and posting #5219. EOE.

Missouri

■ Assistant Teaching Professor. University of Missouri Department of Statistics seeking two assistant teaching professors fall 2015. A PhD in statistics or related field by employment date and excellence in teaching and communication skills required. Position is structured 80% teaching (4 courses a semester or equivalent), and 20% service. Deadline is May 1, 2015. Apply online at *http://hrs.missouri.edu/find-a-job/academic*. CV and transcripts. Three reference letters to *Umcstatfacsearch@missouri.edu*. EOE. ■

NISS
1990 – 2015

25 YEARS: The Statistics Community Serving the Nation

NISS Seeks New Director

The National Institute of Statistical Sciences (NISS) seeks a new Director to lead the Institute into its second quarter century. NISS has come of age with the continuing mission to identify, catalyze and foster high-impact multi-disciplinary and cross-sector research in science, social science and public policy. NISS meets this challenge both by functioning as an independent, not for profit research institute and also by collaborating with the approximately 60 NISS-affiliated organizations from academia, industry and government.

Over the past 25 years, NISS has addressed problems across a wide scope: defining reporting practices for national education statistics, developing methodology for creating and analyzing synthetic data, modeling transportation systems, formulating approaches to protecting data confidentiality, working to calibrate a biomarker detection system, examining statistical methodology for quantifying the cardiac toxicity potential of new drugs, convening expert panels to assist federal agencies in addressing issues and ideas for US statistical data and reporting.

In the quarter century of accomplishments, NISS has also mentored over 70 postdoctoral fellows and has hosted over 70 workshops and conferences, continuing to expand its offerings and focusing on issues important to its NISS Affiliates and the statistical community more generally.

The NISS Board of Trustees seeks a new Director with an entrepreneurial spirit who will embrace the NISS mission and expand the vision for the future. As Director and chief executive officer, the Director will:

- Lead the development of the scientific program of NISS, maintaining the independence, quality, relevance and timeliness that are the hallmark of NISS research
- Generate resources to support NISS infrastructure and NISS programs
- Conserve and build important NISS relationships by
    - Maintaining the centrality of the NISS Affiliates program
    - Sustaining the NISS-SAMSI relationship where synergy benefits both institutes
- Continue the strong NISS Postdoctoral Fellows program
- Oversee the NISS scientific and support staffs

The Director may in addition hold a faculty appointment at one of NISS's parent universities – North Carolina State University, University of North Carolina at Chapel Hill or Duke University.

Requirements for the position include a PhD in statistical science or related discipline, a superior record of scientific accomplishments, experience in assembling, securing resources for and managing cross-disciplinary and multi-organization collaborations, excellent communication skills and personal commitment to the NISS mission.

Additional information about NISS is available on the web site: www. NISS.org.

The goal is to fill the position by July 1, 2016. Applications should contain a letter of interest, CV and names of five references. Applications should be sent to: directorsearch@niss.org. Review of applications will begin at once and will continue until the new Director is appointed. Women and members of under-represented minorities are encouraged to apply. Queries may be directed to Board of Trustees Chair Mary Batcher, or to any member of the Search Committee listed below.

NISS Director Search Committee: Mary Batcher, Bob Rodriguez, Jessica Utts, Susan Ellenberg, Rebecca Doerge, and Richard Smith

Search for an Executive Director for the American Mathematical Society

Position

The Trustees of the American Mathematical Society seek candidates for the position of Executive Director of the Society to replace Dr. Donald McClure, who plans to retire in the summer of 2016. This position offers the appropriate candidate the opportunity to have a strong positive influence on all activities of the Society, as well as the responsibility of overseeing a large, complex, and diverse spectrum of people, publications, and budgets. The desired starting date is July 1, 2016.

Duties and terms of appointment

The American Mathematical Society, with headquarters in Providence, RI, is the oldest scientific organization of mathematicians in the U.S. The Society's activities are mainly directed toward the promotion and dissemination of mathematical research and scholarship, broadly defined; the improvement of mathematical education at all levels; increasing the appreciation and awareness by the general public of the role of mathematics in our society; and advancing the professional status of mathematicians. These aims are pursued mainly through an active program of publications, meetings, and conferences. The Society is a major publisher of mathematical books and journals, including MathSciNet, an organizer of numerous meetings and conferences each year, and a leading provider of electronic information in the mathematical sciences. The Society maintains a Washington office for purposes of advocacy and to improve interaction with federal agencies.

The Executive Director is the principal executive officer of the Society and is responsible for the execution and administration of the policies of the Society as approved by the Board of Trustees and by the Council. The Executive Director is a full-time employee of the Society appointed by the Trustees and is responsible for the operation of the Society's offices in Providence and Pawtucket, RI; Ann Arbor, MI; and Washington, DC. The Executive Director is an ex-officio member of the policy committees of the Society and is often called upon to represent the Society in its dealings with other scientific and scholarly bodies.
The Society employs a staff of about 200 in the four offices. The directors of the various divisions report directly to the Executive Director. A major part of the Society's budget is related to publications. Almost all operations (including the printing) of the publications program are done in-house. Information about the operations and finances of the Society can be found in its Annual Reports, available at www.ams.org/annual-reports.

The Executive Director serves at the pleasure of the Trustees. The terms of appointment, salary, and benefits will be consistent with the nature and responsibilities of the position and will be determined by mutual agreement between the Trustees and the prospective appointee.

Qualifications

Candidates for the office of Executive Director should have a Ph.D. (or equivalent) in mathematics, published research beyond the Ph.D., and significant administrative experience. The position calls for interaction with the staff, membership, and patrons of the Society as well as leaders of other scientific societies and publishing houses; thus leadership, communication skills, and diplomacy are prime requisites.

Applications

A search committee chaired by Robert Bryant (bryant@math.duke.edu) and Ruth Charney (charney@brandeis.edu) has been formed to seek and review applications. All communication with the committee will be held in confidence. Suggestions of suitable candidates are most welcome. Applicants can submit a CV and letter of interest to:

Executive Director Search Committee
c/o Carla D. Savage
Secretary, American Mathematical Society
Department of Computer Science
North Carolina State University
Raleigh, NC 27695-8206
ed-search@ams.org

The American Mathematical Society is an Affirmative Action/Equal Opportunity Employer.

AMSTATNEWS

ADVERTISING DIRECTORY

Listed below are our display advertisements only. If you are looking for job-placement ads, please see the professional opportunities section. For more job listings or more information about advertising, please visit *www.amstat.org*.

misc. products and services

The George Washington University . . . . . p. 31
Joint Program in Survey Methodology . . . . . p. 15
Northwestern University . . . . . p. 40
UW Fifth Seattle Symposium . . . . . p. 41

professional opportunities

American Mathematical Society . . . . . p. 46
NISS . . . . . p. 45
Westat . . . . . p. 43
University of California, San Francisco . . . . . p. 47
U.S. Census Bureau . . . . . p. 44

software

Cytel, Inc. . . . . p. 21
JMP software from SAS . . . . . cover 3
Minitab Inc. . . . . cover 2
NCSS . . . . . p. 37
Salford Systems . . . . . p. 38
SAS Institute Inc . . . . . cover 4

SOCIAL CHATTER

What our followers are saying online

Heads up! **JSM 2015** is just around the corner and members are already talking about it on Twitter.

Join the group and tell us what are you looking forward to doing in Seattle. Follow **@Amstat News** and use **#JSM2015.**

Here are some snippits of the conversation:

ASA Science Policy @ASA_SciPol
The #JSM2015 invited talks are online. Looks like another great program! Here we come Seattle

Irene Helenowski @OrderofTheDimen
What a day. What a day … but at least I got my #JSM2015 title slide done!

The effects of the order of applying multiple imputation in subset analysis examining the association between body mass index (BMI) and transrectal ultrasound prostate weight

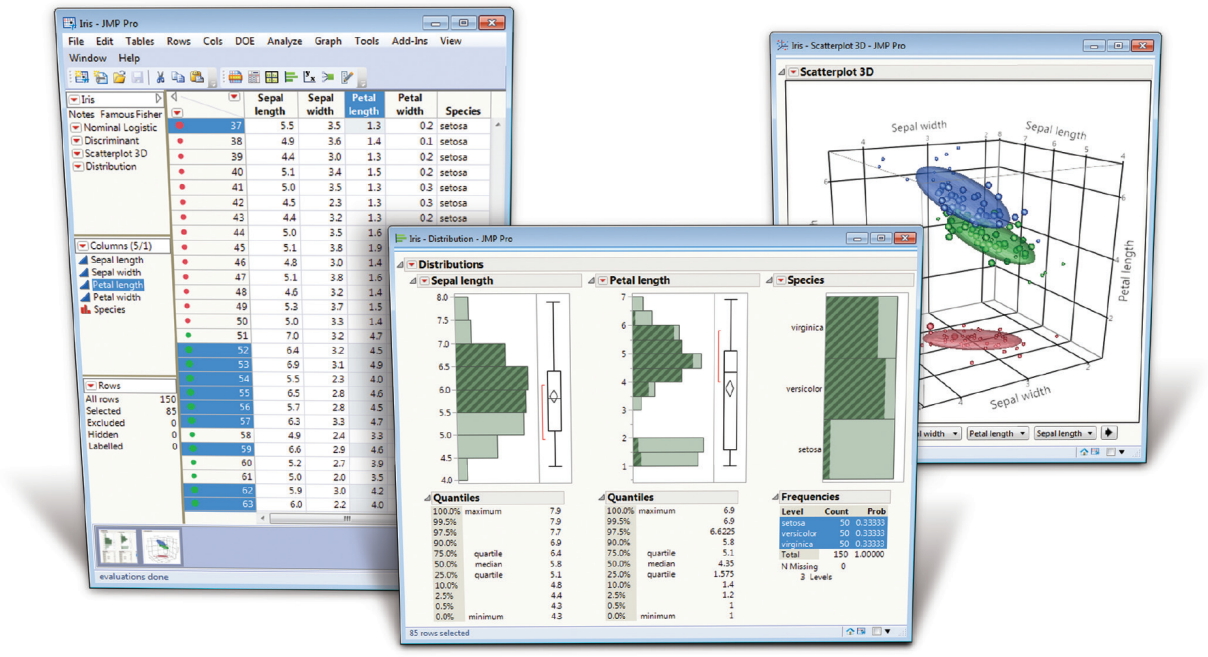
IRENE B. HELENOWSKI, HAKAN DEMIRTAS, JENNIFER A. DOLL, BORKO D. JOVANOVIC, MICHAEL J. GURLEY, TIMOTHY M. KUZEL

Chris Bilder @Chris_Bilder
Short course based on the Analysis of Categorical Data with R at #JSM2015 *http://bit.ly/1J8A0af*

Shannon McWeeney @WonderMixTape
Happy to see our session acceptance for #JSM2015 on developing and translating biomarkers w/ @jtleek @hcorrada @LeviWaldron1 and others

Ted Hart @emhrt_
I think I've decided to spend my travel budget on @pycon #JSM2015 and #agu2015. Hopefully I have chosen wisely.

Simina Boca @siminaboca
Excited about our session on multivariate meta-analysis at #JSM2015 *http://bit.ly/1yz2UR0*



EXPLORE

Data analysis in flow

Introduced in 1989 with scientists and engineers in mind, JMP® software links powerful statistics to interactive graphics. It keeps data in flow, no matter whether it's small, tall or wide. Because there is a graph for every statistic, you can pursue your analysis without restraint. A sampling of its capabilities:

- Regression, GLM and ANOVA
- Generalized Regression: Ridge, Lasso, Elastic Net*
- Mixed Models and Repeated Measures*
- Univariate and Bivariate Analysis
- Multivariate Analysis
- Data Mining Capabilities: Cross-Validation, Multi-Layer Neural Networks, Bootstrap Forests, Gradient-Boosted Decision Trees, Model Comparison*
- Nonlinear Modeling
- SAS,® R, MATLAB and Microsoft Excel Connections
- Time Series Analysis
- Design of Experiments
- Consumer and Market Research Methods
- Categorical Data Analysis
- Reliability and Survival Analysis
- Quality and Process Control
- One-Click Bootstrap*
- Data Visualization, Mapping and Animated Graphs

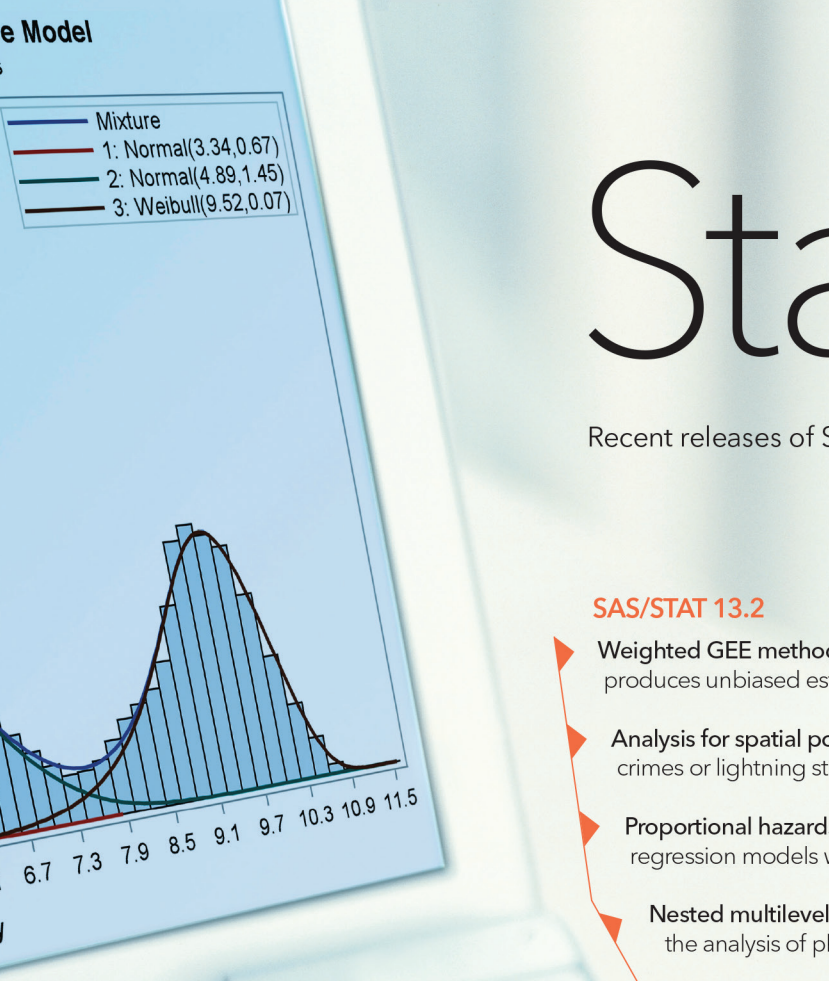
*JMP Pro Only

Try the new release of JMP® 12 software! jmp.com/trial

jmp® Statistical Discovery.™ From SAS.

Available for Mac® and Windows

sas® THE POWER TO KNOW.®



Statistics

Recent releases of SAS/STAT® software provide exciting new capabilities:

SAS/STAT 13.2

Weighted GEE methods. Deal with drop-outs in longitudinal studies with a method that produces unbiased estimates under the missing-at-random (MAR) assumption.

Analysis for spatial point patterns. Understand locations of random events, such as crimes or lightning strikes, and how other spatial factors influence event intensity.

Proportional hazards regression models for interval-censored data. Apply Cox regression models when you have interval-censored data.

Nested multilevel nonlinear mixed models. Fit hierarchical models often used in the analysis of pharmacokinetics data.

SAS/STAT 13.1

Sensitivity analysis for multiple imputation. Assess sensitivity of multiple imputation to the missing-at-random (MAR) assumption with pattern-mixture models.

Survival analysis for interval-censored data. Compute nonparametric estimates of the survival function for interval-censored data.

Bayesian choice models. Use Bayesian discrete choice analysis to model consumer decisions in choosing products or selecting from multiple alternatives.

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

Item response models. Use item response models to calibrate test items and evaluate respondents' abilities.

to learn more
support.sas.com/
statnewreleases

sas
THE POWER TO KNOW®