

BCASA NEWSLETTER

Boston Chapter of the American Statistical Association

Serving

Maine, Massachusetts, New Hampshire, and Vermont

Volume 23, No. 4, March 2005

Homepage: <http://www.amstat.org/chapters/boston>

SCHEDULED EVENTS

March 9, 2005	Afternoon Lecture	Amherst, MA
March 10, 2005	Afternoon Lecture	Northampton, MA
March 28, 2005	Evening Lecture	Boston, MA
April 12, 2005	Evening Lecture	Chestnut Hill, MA
April 23, 2005	New England Statistics Symposium	Storrs, CT
May 20, 2005	Short Course	Cambridge, MA

Event schedule at the chapter website: <http://www.amstat.org/chapters/boston/schedule.html>

Detailed announcements appear inside this newsletter. All events are announced to members by email, providing sufficient notice to make plans to attend. We are currently planning events for the coming year. If you have suggestions please contact Program Chair Tom Lane.

AFTERNOON LECTURE

**Sponsored by BCASA Strategic Initiative Outreach Program and the
UMASS Amherst Department of Mathematics and Statistics**

Acoustic Evidence in the Assassination of President Kennedy

Herman Chernoff

Professor Emeritus of Statistics, Harvard University

Professor Emeritus of Applied Mathematics, Massachusetts Institute of Technology

Date: March 9, 2005

Location: Amherst, MA

Details: <http://www.math.umass.edu/~conlon/seminar/>

Abstract: Acoustic evidence obtained during the assassination of President Kennedy was applied to show that there was a probability of over 95% that there was a second shooter on the grassy knoll at Dealy Plaza. This conclusion played an important part in the report of the U.S. House of representatives dealing with the possibility that the assassination was the result of a conspiracy. The evidence consisted of the tape recordings taken over two police radio channels in use during the assassination. The analysis involved the correlation of sound waves from rifle shots and their echoes with noisy spots on the recordings. This analysis was reviewed by a committee of the National Research Council which decided that the analysis was unreliable, and that the noisy spots, supposedly recording the rifle shots and their echoes, were made after the assassination. A critical role was played by S. Barber, a musician, who detected cross-talk between the two channels. In 2001 Mr. D.B. Thomas published a paper in Science and Justice pointing out some errors in the NRC report, and concluding that the BBN report using the acoustic evidence was correct. We shall discuss the evidence and conclude that the NRC report is sound.

AFTERNOON LECTURE

Sponsored by BCASA Strategic Initiative Outreach Program
and the Smith College Department of Mathematics

The Waterworks Problem

Herman Chernoff
Professor Emeritus of Statistics, Harvard University
Professor Emeritus of Applied Mathematics, Massachusetts Institute of Technology

Date: March 10, 2005

Time: 3:00 PM

Location: Smith College
Burton 301
(Clark Science Center)
Northampton, MA

Details: <http://maven.smith.edu/~nhorton/lecture.html>

Abstract: A legal problem concerning the value of a waterworks system, to be taken by eminent domain, raises many issues in statistical practice. To evaluate the state of the mains carrying the water, 60 locations are sampled where the pipes are exposed and assessed. How should the assessed values be presented and used? The notions of random sample, mean, standard deviation, histogram, confidence interval, simulation, experimental design, and the central limit theorem are introduced. Why we should take 60 locations rather than 30 or 120 will be examined in terms of utility theory.

EVENING LECTURE

Mixed Models: Future Directions and Applications

Eugene Demidenko
Research Associate Professor of Biostatistics and Epidemiology
Dartmouth Medical School

Date: March 28, 2005

Time: 6:30 - 7:00 PM: Light dinner
7:00 - 8:00 PM: Lecture

Cost: Dinner is \$8 for chapter members, \$10 for others. The talk is free.

Location: Faculty Dining Room
Simmons College
Boston, MA

Directions/map: <http://www.simmons.edu/visit/directions.shtml>. We encourage the use of public transportation as there is construction taking place at Simmons. There are however 15 parking spaces available for our use in the lot off Avenue Louis Pasteur.

RSVP: Required by noon on Wednesday, March 23 to Sue Perry at sperry@rhoworld.com. Please indicate whether you will attend the dinner, or just the talk.

Abstract: Since the pioneering paper by Laird and Ware (1982), where the random effects model was applied to longitudinal data, mixed effect models have lead to advances on several frontiers. This talk will illustrate exciting applications of mixed modeling methodology to shape and image analysis. I will also touch on the use of mixed models in such areas as semiparametric regression, penalized smoothing and likelihood, compromise between frequentist and Bayesian approaches, an Akaike information criterion under multicollinearity, and coping with parameter multidimensionality. Finally, I will discuss small-sample properties of the linear mixed effects model. The talk is based my recently published book "Mixed Models: Theory and Applications", Wiley, Hoboken NJ, 2004 (see www.dartmouth.edu/~eugened for details).

EVENING LECTURE

The Resampling Revolution in Portfolio Management: History, Recent Developments, Long-Term Implications

Richard O. Michaud and Robert O. Michaud
New Frontier Advisors, LLC

Date: April 12, 2005

Time: 6:00 - 6:30 PM: Light Dinner
6:30 - 7:30 PM: Lecture
The Chapter election will take place just before the lecture.

Cost: Dinner is \$8 for chapter members, \$10 for others. The talk is free.

RSVP: Required by noon on Friday, April 8 to Sue Perry at sperry@rhoworld.com.

Location: Higgins 225
Carroll School of Business
Boston College
Boston, MA

Directions/map: Parking is available. Tell the attendant you are attending a Finance Department event.
<http://www.bc.edu/about/maps/s-approach> (to campus)
<http://www.bc.edu/about/maps/s-chestnuthill> (within campus)

Abstract: Monte Carlo simulation resampling methods are a pervasive feature of modern statistics, but have only recently been introduced into portfolio optimization (Michaud 1998). Although Monte-Carlo methods have many applications in finance, their use for redefining portfolio optimality was not considered either theoretically or practically because of the dominance of Markowitz mean-variance (MV) optimization. Even today, nearly all commercially-available optimization and asset allocation software ignores estimation error on portfolio optimality. One reason statistical approaches were never implemented is because of the computational intensity of resampling methods as well as the theoretical and pedagogical simplicity of MV efficiency. For the past 50 years, the investment community has overlooked the fact that MV optimization has little, if any, investment value. Practical approaches to estimation error were a closed chapter.

The picture has changed dramatically with the application of resampling methods and high-speed computer technology. Although it was always known that estimation error was a major concern, until Jobson and Korkie in the early 1980s and others published, it was not adequately understood. More recently, properly applied resampling methods have been shown to produce a new, more intuitive, and far more effective definition of portfolio optimality. Indeed, recent research shows that resampling methods may be superior even when compared with highly refined input estimation. We present a condensed review of classical material and recent research.

NEW ENGLAND STATISTICS SYMPOSIUM

Hosted by the Department of Statistics
University of Connecticut

Date: April 23, 2005
Location: The University of Connecticut
Storrs, CT
Website: <http://www.stat.uconn.edu/events/NESS/2005>

SHORT COURSE

Individual Growth Modeling: Modern Methods for Studying Change

Judith D. Singer and John B. Willett
Harvard Graduate School of Education

Date: Friday, May 20, 2005

Time: 8:30 AM – 9:00 AM Check-in
9:00 AM – 5:00 PM Course

Location: Larsen Hall Room G-08
Harvard Graduate School of Education
Appian Way, Harvard Square
Cambridge, MA

Cost: \$100 for chapter members, \$130 for non-members, and \$70 for students (ID must be presented at check-in, or send a copy with your advance registration). This will cover the cost of the course, morning coffee, lunch, and course materials.

Registration: Limited to 90 participants. Mail a check (along with your name and e-mail address) for the course fee, payable to BCASA, addressed to BCASA, c/o Tom Lane, 128 Bingham Rd., Carlisle, MA 01741. Registrations will be accepted until the course fills, but should arrive no later than May 13. If space remains, on-site registration will be allowed. No refunds after May 13 unless you have someone else to fill the space. Receipts will be available at the event. Inquiries can be sent to tlane@mathworks.com.

Directions/map: www.gse.harvard.edu/~admit/directions.html for directions to the Ed School campus. This website includes campus maps, subway information, and a list of local parking garages.

Abstract: Based on their book, *Applied Longitudinal Data Analysis: Modeling Change and Event Occurrence* (Oxford, 2003), Singer and Willett will give an accessible yet in-depth presentation of multilevel models for individual change. Using real data sets from published studies, the instructors will take participants step-by-step through complete analyses, from simple exploratory displays that reveal underlying patterns through sophisticated specifications of complex statistical models. All concepts will be illustrated using real data sets from recent studies. Implementation using a variety of software packages will also be discussed (including SAS, Stata, SPSS, Splus, MLwiN and HLM). The course's emphasis is data analytic, focusing on five linked phases of work: articulating research questions; postulating an appropriate model and understanding its assumptions; choosing a sound method of estimation; interpreting analytic results; and presenting findings—in words, tables, and graphs—to both technical and non-technical audiences. Thoughtful analysis can be difficult and messy, raising delicate problems of model specification and parameter interpretation. The default options in most computer packages do not fit the statistical models people generally want. The course's goal is to provide you with the short-term guidance needed to start using the methods quickly, as well as with long-term advice to support your work wisely once begun. The morning session will begin with descriptive and exploratory methods, followed by a detailed discussion of basic model specification, model

fitting, and parameter interpretation. The afternoon session will extend these principles to the messy arena of real-world applications, delving into topics such as centering predictors, handling variably spaced measurement occasions and varying numbers of waves, including time-varying predictors, and fitting discontinuous and non-linear change trajectories. The target audience is professionals who have yet to fully exploit these longitudinal approaches. Some participants may be comfortable with multilevel modeling, although we assume no familiarity with the topic. Although methodological colleagues are not the prime audience, they, too, should find much of interest.

Book: The course is based on the first half of the instructors' recent book, known by the acronym ALDA. You can learn more about ALDA at gseacademic.harvard.edu/~alda/. Participants are strongly encouraged to obtain copies of ALDA in advance of the workshop from either www.amazon.com or Oxford University Press www.oup.com. We are also investigating the possibility of having copies for sale at the event. Check with Tom Lane, tlane@mathworks.com, to determine if the book will be available at the course. ALDA is supported by a companion website at the UCLA Academic Technology Services, www.ats.ucla.edu/stat/examples/alda/. There you can download the many data sets used throughout the book and code for reproducing all the book's analyses, using your preferred major software package.

Instructors: Judith D. Singer is the James Bryant Conant Professor of Education and John B. Willett is the Charles William Eliot Professor of Education, both at the Harvard Graduate School of Education. Singer holds a PhD in Statistics from Harvard University; Willett holds a PhD in Quantitative Methods from Stanford University. Collaborators for 20 years, their professional lives focus on improving the quantitative methods used in social, educational and behavioral research. Singer and Willett are best known for their contributions to the practice of individual growth modeling, survival analysis, and multilevel modeling, and to making these and other statistical methods accessible to empirical researchers. You can learn more about the instructors on their home pages: gseweb.harvard.edu/~faculty/singer/ and gseacademic.harvard.edu/~willettj

CHAPTER ELECTIONS

The Boston Chapter of the ASA has elections in the spring for terms of office that start the following January. This year the elections will be held at the April 12 meeting. Terms generally run for 2 years, however the Chapter Representative to the ASA has a 3-year term. Officers are elected in a staggered manner, and elections for the offices of Vice-President, Secretary, Treasurer, and Council of Chapters Representative will be held this year. Nominations will be accepted by the Past-President, Robert B. Smith, until the election. Members are invited to submit nominations by contacting Bob at rsmithphd@comcast.net. As usual, the Planning Committee invites members to join. Candidates for officers are generally selected from active, contributing members of the Planning Committee. The Committee meets about once every six weeks during the academic year. Anyone interested in joining the Planning Committee may contact the current President, Scott Evans at evans@sdac.harvard.edu.

MOSTELLER STATISTICIAN OF THE YEAR

Dr. Mei-Ling Ting Lee was recognized as the Mosteller Statistician of the Year by the Boston Area Chapter of the American Statistical Association at a dinner in her honor on February 16th 2005. Refer to the chapter website for pictures from the event (<http://www.amstat.org/chapters/boston/>). The award was presented to Dr. Lee to recognize her contributions to biostatistics and her service to the profession and our local chapter. Dr. Lee is the sixteenth person recognized by the Chapter, and the ninth recipient since the award was renamed in honor of Dr. Frederick Mosteller. The award is given annually to a distinguished statistician who has made exceptional contributions to the field of statistics and has shown outstanding service to the statistical community. Individuals from academia, industry, and government who have been actively associated with the Boston Chapter are considered for the award. Last May, Dr. Lee organized a very successful International Conference on Analysis of Genomic Data, jointly sponsored by the Boston Chapter of the American Statistical Association (BCASA) and the Channing Laboratory.

Mei-Ling Ting Lee is an Associate Professor of Medicine (Biostatistics), Harvard Medical School, and an Associate Professor in the Department of Biostatistics, Harvard School of Public Health. She received a Ph.D. from the University of Pittsburgh in 1980.

Dr. Lee has made significant contributions to several areas of applied statistics. Her recent work has focused on analysis of genomic and proteomic data. Dr. Lee published a single-authored book titled "Analysis of Microarray Gene Expression Data". For applications in

microbiology, Dr. Lee analyzes microflora in healthy and diseased humans. She developed nonlinear models for in vitro kill kinetics of antibiotics and developed improved methods for analyzing serial dilution assay data. Dr. Lee also publishes in the areas of environmental and epidemiological research. Dr. Lee's research on statistical methodology includes studies of association in multivariate distributions and distributions with given marginals. In current work, Dr. Lee is developing methods to model surrogate endpoints and latent disease progression. Dr. Lee is the founding Editor and Editor-in-Chief of the international journal "Lifetime Data Analysis (LIDA)". LIDA is the only journal that is devoted to statistical methods and applications for time-to-event data. The journal is currently publishing the eleventh volume.

Dr. Lee presented "Applications of Threshold Regression in AIDS Research, Environmental Research, and Proteomic Studies" and was introduced by Dr. Alan Zaslavsky, himself a former winner of the award. Regression methodology based on observed first hitting times of a threshold for a stochastic process is referred to as threshold regression. Threshold regression does not require the proportional hazards assumption and in many ways is flexible and realistic for the analysis of time-to-event data. Threshold regression was successfully applied in analyzing data from the protocol 116a of the AIDS Clinical Trials Group. Inferences for the regression model were based on censored survival data and marker measurements of CD4 counts. Covariates, such as treatment variables, risk factors, and baseline conditions, were related to the model parameters through generalized linear regression functions. The application illustrates how threshold regression offers a rich conceptual framework for the study of treatment effects.

After the theoretical presentation, Dr. Lee presented an analysis of a case-control study of lung cancer risk among rail workers using these models. In an application to environmental research, threshold regression was used in a retrospective longitudinal study of more than 50,000 US railroad workers tracked from 1959 to 1996. The initial investigation focused on lung cancer death because of a suspected link to diesel exhaust exposure. Based on the intuitive concept that a lung cancer mortality event occurs when the cumulative environmental diesel exposure of a subject first reaches a threshold level, a threshold regression model was found to be effective in providing insights into the process of disease progression. Applications in analyses of marker processes were also discussed. A threshold model can also be used for analyzing mass spectrometry data.

Previous recipients of the BCASA's Mosteller Statistician of the Year award are listed on our website at <http://www.amstat.org/chapters/boston/awards.html>. Anyone wishing to make suggestions regarding possible future recipients should contact Scott Evans at evans@sdac.harvard.edu.

Submitted by Maureen P. Mayer

JOB OPPORTUNITIES

MULTIPLE PART-TIME OPENINGS: Brigham and Women's Hospital has several part-time consulting opportunities for biostatisticians with masters or doctoral degrees to collaborate with investigators affiliated with Harvard Medical School. The Center for Clinical Investigation, a hospital-funded program dedicated to facilitating high-quality human research has openings for biostatistics consultants to support the design and analysis of clinical studies and grant development. The General Clinical Research Center, a well-established NIH-funded national research infrastructure program has openings for biostatisticians to primarily design studies and review protocols. These positions are appropriate for experienced biostatisticians who prefer to work part time, and for biostatisticians who are in the work force and seek extra income. It is likely that publications, grants, and interesting research ideas will emerge from these working relationships. Please contact Shelley Hurwitz, hurwitz@hms.harvard.edu.

STATISTICAL CONSULTANT: The Business Research and Consulting Division of Abt Associates Inc. is seeking a mid-level staff member to join their statistical/quantitative analysis team. Responsibilities include performing statistical/quantitative analysis in support of the strategic, market and competitive research the Division conducts for its clients. The consultant will work as a member of client research teams and have responsibility for conducting statistical/quantitative analyses and for supporting the preparation and delivery of the analytical results. In addition, the individual will work with the statistical/quantitative analysis team to help develop new methodologies and analytical frameworks. The individual will also be expected to provide training and assistance to staff to aid in understanding and interpreting methodologies and results. Required: Masters in Statistics, Applied Statistics or the equivalent, a strong conceptual understanding and practical ability to apply univariate and multivariate statistical techniques, a broad awareness of a range of quantitative methodologies, a strong capability to learn new analytical frameworks and techniques, ability to work effectively on a team, superior communication skills, ability to manage multiple priorities and deadlines, ability to be an individual contributor within a team environment, competence with statistical packages, preferably SAS, along with other standard office software. Please send cover letter and resumes to Cydney Cotter in Human Resources at cydney_cotter@abtassoc.com.

SUMMER INTERNSHIP: The Biostatistics Research Center in the Institute for Clinical Research and Health Policy Studies at Tufts - New England Medical Center is offering a summer internship in Biostatistics. Qualified applicants will have at least 3 years of college

education in statistics, mathematics or a related field. Knowledge of Microsoft Office is required and knowledge of a statistical software package (such as SAS or S-Plus) is desirable. Responsibilities will include helping to create code books to describe the definition of variables used for research projects; helping with data cleaning and logic checking; and helping to create an internet-based nutritional database by transferring nutritional pathways into an XML code. Salary is commensurate with experience. Please submit resumes and address all inquiries to Paul C. Stark, ScD, either by email at: pstark@tufts-nemc.org or postal mail at: Paul C. Stark, ScD, Assistant Professor of Medicine, Biostatistics Research Center, Institute for Clinical Research and Health Policy Studies, Tufts - New England Medical Center, 750 Washington St, Tufts-NEMC # 63, Boston, MA 02111.

STATISTICAL SOFTWARE DEVELOPER: The MathWorks of Natick, MA, is seeking a creative statistician to help propose, plan, and develop the statistical programming tools we offer to our MATLAB customers. This includes the design, architecture, and development of statistical software and GUIs written in MATLAB and/or Java. The ability to work constructively in a team environment is vital. The candidate should have experience taking a project from concept to shipping. Qualifications include an M.S. with 3-5 years industry experience or a Ph.D.; expertise in computational math; experience with MATLAB, R, S-plus, or similar technical computing language; excellent written and verbal communication; ability to formulate realistic goals and meet commitments; and experience writing software for use by others. To apply, visit <http://www.mathworks.com/company/jobs/>. For more information contact Tom Lane, tlane@mathworks.com.

TREASURER'S REPORT

2004 INCOME

Interest	\$ 318.62
Membership - ASA	\$ 4,237.00
Membership - Local	\$ 139.00
TOTAL INCOME	\$ 4,694.62

2004 EXPENSES

Bank Fees	\$ 34.00
Newsletter	\$ 0.00
Planning Committee	\$ 548.23
Other	\$ 1664.10
TOTAL EXPENSES	\$ 2,246.33

2004 Meetings	\$ 171.13
2004 Genomics Conference	\$ 17,447.90

NET GAIN IN 2004	\$ 20,067.32
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ASSETS

Bank Accounts*	\$ 24,200.53
CDs*	\$ 5,591.50

TOTAL ASSETS	\$ 29,792.03
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* Reflects accounts as of March 1, 2005.

This year's profits are primarily due to two factors – the genomics conference and moving to an electronic newsletter.

Submitted by Michael A. Posner

The BCASA Newsletter is published four times during the academic year and is emailed to current BCASA members. Send comments to any officer or newsletter production committee member.

BCASA OFFICERS

<i>President, 2005-06</i>	Scott Evans, Harvard School of Public Health
<i>Program Chair, 2005-06</i>	Tom Lane, The MathWorks
<i>Vice-President, 2004-05</i>	Shelley Hurwitz, Harvard Medical School
<i>Secretary, 2004-05</i>	Maureen P. Mayer, Raytheon Company
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<i>Council of Chapters Representative, 2003-05</i>	Nicholas Horton, Smith College
<i>Past President, 2005-06</i>	Robert B. Smith, Social Structural Research Inc.

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