

THE STATISTICAL CONSULTANT



Section on Statistical Consulting
Karen Copeland, Editor; Christopher Holloman, Assistant Editor

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JSM 2007: Statistical Consulting Section Sessions

Our section is the lucky sponsor of three Invited sessions at this year's JSM in Salt Lake City, Utah. We were guaranteed two but had the third accepted in the open bidding. Many thanks to Phil Chapman for his hard work on the program! We are also the sponsors of two topic-contributed sessions.

Invited Sessions:

- Accreditation of Professional Statisticians
- Land Grant University Ethics (LANGURE): The Ethical Use of Statistics in Research
- The Future of Pro Bono Statistics

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Accreditation of Professional Statisticians

Organized by Judith-Anne W. Chapman, Queen's University

Title: SSC Accreditation - The Canadian Model

Author: Judith-Anne W. Chapman, Queen's University

Abstract: Statisticians now have formal professional recognition in UK, Australia, and Canada. The ISI is considering a similar step. Statistical Society of Canada (SSC) Accreditation of Professional Statisticians operates under recently approved Canadian Federal Trademarks, P.Stat. (Professional Statistician) and A.Stat. (Associate Statistician). There was a general opening for P.Stat. in March, 2004. With sufficient P.Stat. approved to be mentors for A.Stat., there was a first call for A.Stat. applications in June, 2006. This panelist was Chair of SSC Accreditation Committee at the time when Accreditation was opened and will outline placement of SSC Accreditation in a multi-disciplinary and international framework.

Title: Academia and the Professional Statistician Community

Author: Mary E. Thompson, University of Waterloo

Abstract: Accreditation in Canada is a certification for professional practice of statistics, and has strong support from academia as well as the professional statistician community. The program has important implications for universities. It provides a new dimension to undergraduate and master's level education. University statisticians are and will be closely involved in the development and delivery of continuing education opportunities. The academic and professional statistician communities also intersect. Some reflections on the importance of this intersection and some of the questions surrounding it will be offered.

Title: The ASA Consideration of Accreditation

Author: Mary Batcher, Ernst & Young

Abstract: Several years ago, the ASA considered certification but chose not to institute a certification program. Since then, three other statistical societies have successfully implemented accreditation programs. The ASA Task Force on Accreditation reviewed these three programs and conducted focus groups and surveys of ASA members. Based on the interest expressed in the focus groups and survey, the Task Force recommendation to the ASA Board was the establishment of an ASA Committee to develop the basic structure of an accreditation program and present that to the Board for its consideration. This panelist led the Task Force on Accreditation and will discuss the work of the Task Force and its recommendations and the progress of the Committee on Accreditation.

Land Grant University Ethics (LANGURE): The Ethical Use of Statistics in Research

Organized by Marcia Gumpertz, North Carolina State University

Title: The Ethical Use of Statistics in Research

Author: George P. McCabe, Purdue University

Abstract: As a consultant, the statistician is sometimes viewed as a gatekeeper with the primary responsibility of preventing researchers from violating statistical principles. We do not want to do anything wrong. With the trend toward collaborative research that is happening in many settings, however, the role of statistician has changed. We have greater responsibilities and we need to deal with situations where there is no clear right or wrong decision. The ethical implications of this expanded role will be explored and illustrated with examples. Transparency in decision making is offered as a guiding principle for ethical behavior in ambiguous situations.

Title: Training University Students in Ethical Use of Statistics as Part of the LANGURE Project

Author: Larry A. Nelson, North Carolina State University

Abstract: The need for an Ethics in Research course gave rise to a project called LANGURE involving a consortium of eight U.S. universities. The resulting one-hour course will be taught at several Land Grant and related institutions. In some institutions, it will be required of all graduate students. One important course module will be Ethical Use of Statistics. Statisticians and users of Statistics from the eight universities are jointly involved in developing the content of the course. This content will focus on types of ethical problems in statistical usage such as misuse, sloppiness and outright fraud. Case study examples of each of these problem types will be presented in the course. In addition to planning and conducting the experiments or surveys, emphasis will also be given to the analysis and reporting phases. Module access will be available on the NCSU Graduate School Website.

Title: Land Grant University Ethics (LANGURE): The Ethical Use of Statistics in Research

Author: Michael Crotty, SAS

Abstract: Graduate students conducting research at land grant universities benefit from training in research ethics, particularly the ethical use of statistics in their research. The ethical use of statistics includes involving a statistician from the design phase of a study through to the analysis and presentation of results. A research ethics course has been designed for graduate research students to learn about conducting ethical research. We focus on the statistics module developed for this course.

The Future of Pro Bono Statistics

Organized by Nilupa S. Gunaratna, Purdue University

Title: Volunteerism in the ASA

Author: David Banks, Duke University

Abstract: In 2005 the ASA established a Special Interest Group on Statistical Volunteerism. That group undertook pro bono projects in a number of areas, such as survey designs for Darfur, development of curricula for developing nations, and analyzing data from the Innocence Project. Not all of the efforts led to successful projects, but often things worked well. This talk describes the accomplishments, the obstacles, and the possibilities for the future.

Title: A Role for Students in Pro Bono Statistics

Author: Gayla R. Olbricht, Purdue University

Abstract: In 2001, a graduate student at Purdue University founded Statistics in the Community (STATCOM). This voluntary graduate student-run program provides free statistical consulting to local governmental and nonprofit community groups. STATCOM fulfills a service-learning role by giving students the opportunity to serve society while applying classroom material to real-life situations. In 2006, STATCOM was awarded a Strategic Initiatives Grant from the ASA with the goal of serving as a resource to others interested in starting similar programs. One ultimate goal of these efforts is to establish a formal network among students engaged in pro bono statistics. This talk discusses how students can participate in pro bono statistics, the benefits of such student-driven volunteerism, achievements and lessons learned from the STATCOM Strategic Initiative, and ideas for the future.

Title: Pro Bono Statistics and Public Policy

Author: Yasmin H. Said, George Mason University

Abstract: Efforts to persuade Congress to enact legislation that affects public policy are constantly being made by lobbyists who are paid by special interests. While this mode of operation is frequently extremely effective for achieving the goals of the special interest groups, it often does not serve the public interests in the best possible way. As counterpoint to this mode of operation, pro bono interaction with individual legislators and especially testimony in Congressional hearings can be remarkably effective in presenting a balanced picture. The debate on anthropogenic global warming has in many ways left scientific discourse and landed in political polemic. In this talk I will discuss our positive and negative experiences in formulating testimony on this topic.

Topic-Contributed Sessions:

- The Statistician's Contribution to Fact-Finding in Law
- Consulting from a Distance: Web-based Analytics for Statistical Consulting

The Statistician's Contribution to Fact-Finding in Law

Organized by William B. Fairley, Analysis and Inference, Inc.

Proof of Change-points in Securities Prices Litigation: Use and Misuse of Event History Analysis

Kenneth Swartz, Yulia R. Gel, R. Alan Miller, and William B. Fairley

Bagging and Propensity Scores in Statistical Learning to Assign Ownership of Unclaimed Property

Marc Sobel and Kenneth Swartz

Resolving a Multi-Million Dollar Contract Dispute with a Latin Square Design
Steven Crunk, William B. Fairley, Marian Hofer, and Peter J. Kempthorne

Statistical Assessment of the Fairness of a Firm's Allocation of Shares in Initial Public Offerings
Efsthathia Bura

Consulting from a Distance: Web-based Analytics for Statistical Consulting

Organized by Edward D. Rothman, University of Michigan, and Samaradasa Weerahandi, Time/Warner RSM

Chair: Brady West, University of Michigan-Ann Arbor

Web-based Analytics in Marketing
Samaradasa Weerahandi

Use of Remote Consulting in a University Environment
Edward D. Rothman

Remote Consulting on Linear Mixed Models at a University Consulting Center
Kathleen Welch and Brady West

How to move from Desktop to Web Analytics
Dilip Patel

Statistical Profiles of Statistical Consulting Section Officers

Karen Copeland, Boulder Statistics *

Statistical consultants and how they operate as such are as varied as the problems that we work on. I myself am an independent self-employed consultant. I work with clients remotely out of my home office while my son is in school. My business started on a whim at the suggestion of a colleague who wanted us to continue to work on design of experiment projects at a time when I was leaving the company that we both worked for. Nearly ten years later I still don't have a "real job."

However, over those ten years I have developed a diverse (yet small) client base through networking, soliciting, and pure luck. Some clients are mine outright, I bill them directly for the work that I do. Other clients I work with through alliances (sub-contracts) with consulting groups (currently two regulatory groups and one web-usability group).

Recent projects that I have worked on include writing a JMP script for parallel line analysis for bioassays, survey analysis of web footer surveys, and graphical displays for a report about a newspaper waste handling system. I am constantly learning new methods to meet the demands and questions of my clients. The work is challenging, fun, and sporadic.

That is my brief story; the profiles below will give you a taste of how some of the consulting section officers define themselves as statistical consultants.

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Representative at Large

Anamaria S. Kazanis - ASKSTATS Consulting

Anamaria started work in 1998 as a part time Statistics Graduate Student Instructor, at the University of Michigan, not only teaching Statistics with SPSS but also acting as facilitator of student projects. Upon graduation, she became an internal Statistical Consultant at the University of Michigan, supporting a variety of health and social science projects from study design, survey design, and analysis to manuscript coauthoring and publication. Working primarily with faculty investigators, she continued to facilitate student research projects. She joined the VA Ann Arbor Healthcare System in 2004 as a Data Analyst in Health Services Research. In the spring of 2006, she established 'ASKSTATS Consulting' to provide external statistical services. Her primary customers continue to be at the University of Michigan where she continues to consult for health and social science projects and is expanding her activities to include research at the School of Business. Anamaria is an active member of the American Statistical Association, elected to the Executive Board of the Statistical Consulting Section (2005-07), and continues to expand her knowledge and professional network in activities of ASA Ann Arbor and Detroit Chapters, as well as the Michigan and MidWest SAS Users Groups, chairing the Statistics and Data Analysis Section of the 2006 Meeting of the Midwest SAS Users Group.

WebMaster

Chuck Kincaid, COMSYS Information Technology, Inc.

Chuck manages the COMSYS Centers of Excellence that provide off-site support for customers of their Business Analytics and Business Intelligence Practices. The people he manages provide statistical (or analytical as companies call it now) support for a variety of external clients. Their statistical work is often in conjunction with building an application that promotes the use of statistics within the company.

The work that COMSYS does is mostly with "industry." Their clients are typically in the following industries: Manufacturing, Pharmaceutical, Market Research, Insurance, Healthcare, Retail, and Education. The people that they talk to are mostly on the business side, but more and more are in IT.

Some projects that Chuck has worked on or is working on include:

1. Helping Chevron create an automated method for delivering statistical models to their internal customers for use in "What-if" scenarios.
2. Helping an automotive company implement a warranty analysis system.
3. Creating an e-business application for a healthcare company that integrates data from member hospitals for delivery of quality control and other dashboard reports back to the members.

Past-Chair

Philip Dixon, Iowa State University

By day, Phil is a professor in the Statistics Department at Iowa State University. In that position, he does a lot of consulting with graduate students, faculty, and staff working across the biological sciences.

In his words: It's a lot of fun to work with good researchers in many different fields. On one day, I may be working with biochemists using gene knockout mutants to study amino acid synthesis. Or, I may be developing multivariate methods to understand the antiviral or anti-inflammatory

activity of herbal products like Echinacea. On another, I may be working with an entomologist to estimate the impact of Bt corn and insecticides on insect predators or developing generalized linear mixed models to estimate survival of weed seeds.

Outside the working day, Phil consults with government agencies and industry, mostly on environmental or ecological statistics. Some recent examples are evaluating the impact of Everglade's restoration on bird populations, estimating correlations between heavy metal concentrations in hazardous waste sites, and estimating the loss incurred by investors in a pyramid-marketing scheme.

Chair

Stuart A. Gansky, University of California, San Francisco

Stuart is a biostatistician in the Division of Oral Epidemiology & Dental Public Health at the University of California. He has been working in health research for 17 years and is currently a full time faculty member who primarily consults internally with faculty colleagues as well as graduate and post-graduate students. However, he has consulted externally to academe, industry, and government to other institutions such as health sciences universities and insurance and medical product companies.

His work as a statistician has included community health intervention studies including a maternal and child migrant health study and a school-based cardiovascular health intervention trial in children; epidemiology studies such as the Intergenerational Epidemiologic Study of Periodontitis; and clinical trials such as pain relief studies and a fluoride varnish caries prevention trial. He is PI of a new NIH study to model oral health disparities in California. He was co-PI of an NIH study of fibromyalgia and temporomandibular disorders in a cohort of young women.

Stuart is Director for the Measurement and Evaluation Core of the Center to Address Disparities in Children's Oral Health. He is Associate Director of the Methods Core of the UCSF Multidisciplinary Clinical Research Center. He served as Associate Director for the Biostatistics and Research Design (BARD) Core of the Comprehensive Oral Health Research Center of Discovery (COHRCD). He has also served as biostatistician on several NIH/NIDCR Data and Safety Monitoring Boards and an NIH/NCI advisory board.

Dr. Gansky worked for over eight years in the Biometric Consulting Laboratory at the University of North Carolina while earning bachelor, master's, and doctoral degrees in Biostatistics before joining the UCSF School of Dentistry faculty in 1996. He received UNC School of Public Health awards for his consulting abilities and service to the Department of Biostatistics, was Secretary/Treasurer for the American Statistical Association Section on Statistical Consulting from 2000-2003, and is Section Chair in 2007.

Member at Large

Karen Pieper, Duke University

Karen is a full-time employee of the Duke Clinical Research Institute (DCRI). Her role is to oversee the analyses of secondary manuscripts for their clinical trials databases and serve as a resource for miscellaneous analyses requests that come to the DCRI. Other requests may be an MD with an EXCEL spreadsheet on 5 animals he or she has studied, working with medical residents and fellows to help design their research projects, providing mini-courses in research issues for non-statistical personnel at Duke and in the pharmaceutical industry, or working with clinical trials databases. Currently Karen has a student from NC State who is shadowing her once a week as part of his training grant. She has had students work with her on these consulting projects in the past but does not have any this point in time.

Most of Karen's effort is spent on large cardiovascular industry-sponsored clinical trials databases.

Most of these studies are international. She receives requests for a topic for a manuscript or presentation and once IRB approval and funding are established she then assigns the work to one of the statisticians working with her. That statistician writes an analysis plan that is reviewed by the investigator and possibly also the principal investigator of the trial and in some cases the sponsor. Since Karen is in an academic institution, she has the right and obligation to analyze the data and publish results as she sees best regardless of the feelings of the sponsor. However, she is happy to have the sponsor's input, as often they are quite helpful in thinking through some of the study design and analytic issues. Currently Karen is coordinating the work on approximately 40 manuscripts from 2 international clinical trials and one national registry database. She and the other statisticians she works with are involved in all of the phases of the manuscripts, analyzing the data, creating tables/figures, writing the statistical analysis section, reviewing multiple versions of the paper, and assisting with reviewers' comments when the articles come back.

In Karen's words: This job is wonderful because I am able to work with a variety of investigators and be involved in important research. Most importantly, even after 20 years, I continue to learn new statistics almost every week.

Notes from the Editor

Karen Copeland, Boulder Statistics[†]

I thank the members of our section's leadership for sharing their consulting bios for this newsletter. Consulting is about networking, and networking is about learning what others are involved with. Our next newsletter is due out shortly before JSM. That newsletter will contain updated information about section events that will take place at JSM. For those of you who can't make it to JSM this year watch for the winter newsletter in which we will try to include highlights from section sessions.

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