THE STATISTICAL CONSULTANT

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

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JSM 2007: Consulting Section Round Table Lunches (Fee Events)

Many thanks to James Grady for organizing the four round tables that will take place this year at JSM. Round tables offer you a way to have lunch, meet new people, and discuss a topic of interest.

Monday, 7/30/07, 12:30 PM -1:50 PM
Right Answer, Wrong Question: Characterization and Reduction of the Risk of Type III Error in Statistical Applications - John L. Eltinge, Bureau of Labor Statistics

Tuesday, 7/31/07, 12:30 PM - 1:50 PM
Alternative Models for Consulting Services in Academic Medical Centers - Shelley Hurwitz, Harvard Medical School

Statistical Consulting in Medical Devices: Opportunities and Challenges - Jianxiong Chu, Food and Drug Administration

Executive Committee of the ASA Section on Statistical Consulting

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Council of Sections Representatives:
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Susan McGorray (Junior), spmcg@biostat.ufl.edu

Wednesday, 8/1/07, 12:30 PM - 1:50 PM
Recognizing and Resolving Breakdowns in Your Consulting Practice - Doug Zahn, Zahn and Associates

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Social Sciences and Statistical Consulting

Dale Glaser, Glaser Consulting *

Approximately 30 years ago (circa 1977!) I took my first statistics course at University of California, Irvine. As with many psychology majors, there is some apprehension about quantitative courses, but the instructor, Dr. Robert Newcomb (a long time member and fellow of ASA) made the year-long course both accessible and comprehensible, driven largely by his engaging and clear-spoken manner. From there I saw the intertwining of quantitative methods and the social sciences, hence leading to this brief article.

For the bulk of undergraduate students majoring in the social (and related) sciences, at the minimum one semester/quarter of statistics and research design are required, with many programs requiring one year of statistics (also, universities differ in their quantitative requirements for social

*glaserconsult@sbcglobal.net

science majors, some requiring one year of calculus). As I mentioned above, though there is usually a certain level of apprehension of quantitative methods for social science majors, as I have found after teaching undergraduate statistics for over 11 years to psychology majors, the fundamentals of statistical learning are necessary not only so that the student can interpret research literature but also become an objective consumer of information as conveyed via data. Since in the social sciences, and especially certain domains of psychology, we deal with many latent constructs (*e.g.*, depression, self-efficacy), much attention is directed to the areas of measurement, scale construction, sampling, and psychometric testing.

I am trained in Industrial/Organizational Psychology, which historically has a strong quantitative and methodological bent with courses including survey research, experimental/research design, psychometric theory, and multivariate statistics. Also, given the advances in latent variable analysis and hierarchical structures, more programs are offering courses in structural equation modeling (SEM) and multilevel modeling (MLM), and many social scientists are versed in those domains. Thus, though the training of a social scientist is markedly different from a mathematical statistician, we are uniquely trained to work as internal or external consultants in areas of survey construction/survey research, item analysis, psychometric testing (assessment of reliability and validity, exploratory and confirmatory factor analysis), statistical modeling (*e.g.*, SEM, MLM), and testing of hypothesis via univariate and/or multivariate methods.

After working as a statistician/methodologist (and ad hoc consultant) for various organizations (particularly in health care) I finally decided to take the plunge towards a consulting practice and had the fortune of one major contract to start with. As well, knowing the ebbs and flows of self-employment, I was able to ramp up my teaching schedule where I teach undergraduate and graduate statistics and research design at multiple institutions. With this there are some points/suggestions I want to make about consulting and the type of training afforded in the social sciences:

1. Firstly, my MS was in Counseling Psychology and that training has served me very well as I have found that the interactive component in the consulting process can be critical to the success of the project. The ability to listen clearly to the client and offer clarity and feedback to the client's objective(s) is fundamental to the consulting process. Even though the 'people' part of statistical consulting may seem peripheral to the analytical process, I have not found that to be the case. In fact, a recent Amstat News article authored by Mani Laskshminarayanan (April, 2007) echoes that exact sentiment insofar "interpersonal and communication skills are a 'must have' for statisticians" (p. 19). The ability to be sensitive to the client's preferences and with much intelligibility and accessibility summarize the findings is imperative to project success.

2. My background has afforded me the opportunity to work in a diverse array of settings from Health Care (physician and nursing research) to Education/Academia to Marketing Research to the public sector (*e.g.*, military research). Thus, it behooves the consultant to learn the language germane to the project (*e.g.*, had to re-review what mitral valve was for a cardiology study!) and become conversant with the primary project stakeholders. I discuss this point briefly in an article summarizing a presentation I did at the American Psychological Association on nontraditional careers in psychology (found at: *http://www.apa.org/science/ic-glaser.html*)

3. Many social scientists and most of my clients are trained in and use SPSS, though that software is rarely used in other disciplines (*e.g.*, pharmaceuticals, manufacturing), as other programs are favored by statisticians such as SAS or S-Plus. I learned SPSS via the mainframe, so I strictly use the syntax language, and my brief exposure to SAS has found many

parallels in the syntax. Thus, if a social scientist is desirous of entering the realms outside of their training, it will be incumbent they become savvy with the aforementioned softwares. I have also recently tutored myself on the R language, as there are some models I have found can not be tested in SPSS (*e.g.*, recurrent event analysis, partial least squares).

4. I make it very clear to my clients that I am not a mathematical statistician nor a programmer, and I refer them elsewhere if that is their preference. Thus, though I have dabbled in simulation (primarily in SEM), I would refer a client to colleagues who are more tutored in that area. Now, there have been times in certain projects where I have had to engage in some self-instruction (*e.g.*, a few years ago I had occasion to use multiple correspondence analysis and of recent zero-inflated Poisson regression) so as to meet the demands of the research, but if something is beyond my training and reach, I make sure to never over-sell myself.

Statistical Profiles of Statistical Consulting Section Officers

Karen Copeland, Boulder Statistics *

We continue our piece on consulting section officer profiles with the profile of our recently elected Treasurer.

Treasurer
Brenda Gillespie - University of Michigan Center for Statistical Consultation and Research

Brenda is Associate Director of the University of Michigan (UM) Center for Statistical Consultation and Research (CSCAR). In that role, she consults with faculty, staff, and graduate students from across the vast research network at UM. She also teaches statistical short courses, as well as a course each year to Biostatistics graduate students in the School of Public Health.

Consulting and teaching topics often involve survival analysis, other statistical modeling, and clinical trials. Current research projects involve (1) investigating outcomes of living donor organ transplantation (liver, kidney, and lung); (2) examining the natural history of chronic kidney disease to find predictors of disease progression and death; (3) investigating facility practice patterns that improve survival and quality of life among patients on hemodialysis; (4) assessing environmental predictors of serum dioxin levels among people living in contaminated and control areas in Michigan; and (5) studying the prevalence and transmission of Group B Streptococcus in healthy populations.

These projects all involve study design, presentations, and publications, and have resulted in a long CV. Her minor contributions to a book on mixed models by colleagues at CSCAR (West, Welch, and Galecki) was a particularly satisfying project.

Sleep deprivation is a frequent liability of the job; during the months before NIH grant proposals are due, she says she feels like posting a sign on her door, "Office of Emergency Statistics." However, the work is exciting, and she says she feels like she is helping to solve important problems that

*karen@boulderstats.com

will improve the lives of potentially thousands of people. She enjoys working with outstanding researchers as a member of several excellent (and fun) research teams.

Comments from the Chair

Stuart Gansky, University of California, San Francisco *

- Webinar Workshops
- Election Results
- CONSULT-L Listserv
- e-Directory of Statistical Consultants
- Mixer at the 2007 JSM Section Business Meeting Sponsorship

As the calendar hit 07/07/07 the other day, I felt lucky that many exciting projects are coming to fruition for the ASA Section on Statistical Consulting. Philip Chapman has done a terrific job planning the Section's program events for the Joint Statistical Meetings in Salt Lake City and Jamie Grady has organized a variety of interesting roundtable lunches. Below are some of the other recent developments.

Webinar Workshops

Earlier in the year we held our last Webinar in the workshop series sponsored jointly with the Committee on Applied Statisticians (CAS). That web-based seminar on the regulatory biostatistician was given by Dr. Bob O'Neill, Director of the FDA Office of Biostatistics, on March 14 with dozens of participants. Although the ASA Strategic Initiative funds have been exhausted for the 1 year trial, we are pursuing ways to make it sustainable to continue the webinars. Anyone who, or whose company, might be interested in sponsoring a webinar should contact me or Chair-Elect Brenda Gaydos. We are grateful to Mani Lakshminarayanan of CAS and Bonnie Dumas and Philip Dixon of CNSL for spearheading this initiative.

Election Results

In this year's elections, the Section elected Bruce Craig as Chair Elect, Brenda Gillespie as Treasurer, and Maria Lourdes Padilla to the Executive Committee at Large, as well as approved the charter revisions. The work of the charter revision committee (Susan Devlin, Jane Pendergast, and myself), ASA staff, and past Council of Sections Governing Board Vice Chair Russ Lenth was

*sgansky@itsa.ucsf.edu

brought to a close by Past Chair Philip Dixon who deserves special thanks for coordinating this task.

CONSULT-L listserv

Our new consulting section e-mail listserv went live on June 5. This asynchronous discussion forum is a great place for Section members to ask questions about being a consultant (such as where's a good place to buy error & omission insurance), post consulting opportunities / jobs, give advice, and discuss related issues. To respect Section members' privacy, you must Opt-In to join the listserv.

Here's how to **Opt-In**:
Send an e-mail to
`listserv@mail.amstat.org`
with the body of the message saying
`SUBSCRIBE CONSULT-L`
then follow the instructions e-mailed to you.

To **leave** the listserv at any time, send an e-mail to
`listserv@mail.amstat.org`
with the body of the message saying
`SIGNOFF CONSULT-L`

Thanks go to Bonnie Dumas, Susan Devlin, and Ryan Bell of ASA for their work on making this project a reality.

e-Directory of Statistical Consultants

We are also in the process of rolling out the log-awaited Section e-Directory, a web-based database of Statistical Consultants. Again, to respect privacy, Section members must Opt-In to be in the database. This idea has been around since at least 2001 when Ron Wasserstein was Section Chair. Numerous individuals have worked on it including Committee members Susan Devlin, Harold Dyck, Deborah Fripp, Anamaria Kazanis, and Charles Mann, along with ASA's Ryan Bell. Thanks to their hard work, the system is being rolled out. The first phase will be for members to update their newly developed profiles in the MembersOnly section of *www.amstst.org*. You can even link to your personal website. In September we will enable a search function by content area or geographical region. This will allow clients to find consultants who fit their needs. Initially it will be a free service for those who want to hire statistical consultants, but eventually there may be a small fee implemented for clients using this service. We anticipate this always being an included benefit of keeping your Section membership current. See the information at the end of the newsletter for step-by-step instructions on updating your profile.

Mixer at the 2007 JSM Section Business Meeting Sponsorship

I am pleased to announce that MRI Network Management Recruiters of Salt Lake City has made a generous donation to the Section to help sponsor refreshments at the mixer at the Section Business Meeting at the JSM on Tuesday, July 31. Our gratitude goes to Jared Swapp, Director of the Biometrics Division of MRI Network for his support. Please join us at the business meeting and mixer.

All these efforts stem in part from the 2000 membership survey (*The Statistical Consultant*, Winter 2004) in which respondents suggested services they would find useful. We need your continued input to improve these member services.

Notes from the Editor

Karen Copeland, Boulder Statistics[†]

This newsletter, the thanks goes out to Dale Glaser for his unsolicited article on statistical consulting and the social sciences. Thanks Dale! The next newsletter edition should be out in mid-December. We will try to include some JSM session highlights in that newsletter. If there is a particular session you would like to see a write-up on by all means send me an email and I will see what I can do.

[†]karen@boulderstats.com

Karen Copeland, Editor

Contact information: Boulder Statistics
2456 Vine Place
Boulder, CO 80304
Phone: 720-564-0661
karen@boulderstats.com

Christopher Holloman, Assistant Editor

Contact information: The Ohio State University
Cockins Hall
1958 Neil Ave.
Columbus, OH 43210
Phone: 614-292-0738
holloman@stat.ohio-state.edu

Remember the
Section on Statistical Consulting
website address:

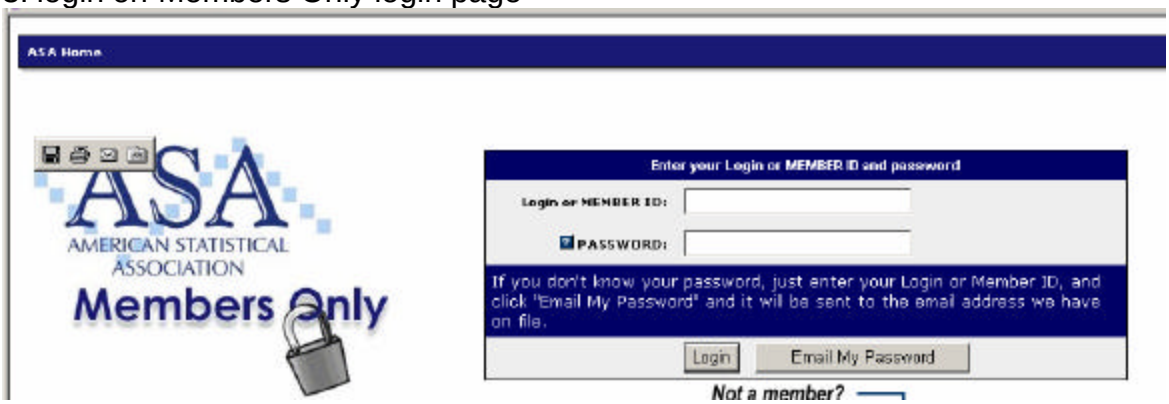
www.amstat.org/sections/cnsl/

You'll find all information relating to the Section on Statistical Consulting, including our charter, officer list, section activities, past issues of *The Statistical Consultant*, minutes of past meetings, and more.

Update your Consultant Profile in the Directory of Statistical Consultants of the ASA Section on Statistical Consulting

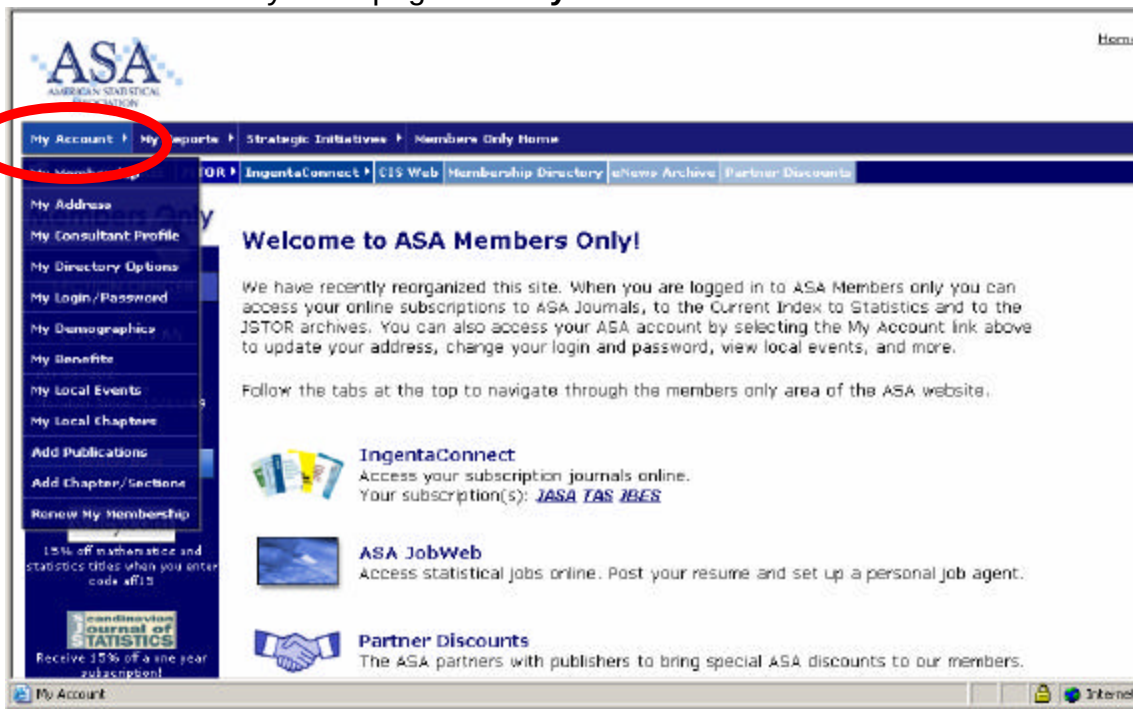
1. go to ASA homepage: www.amstat.org
2. click **Members Only**

3. login on Members Only login page

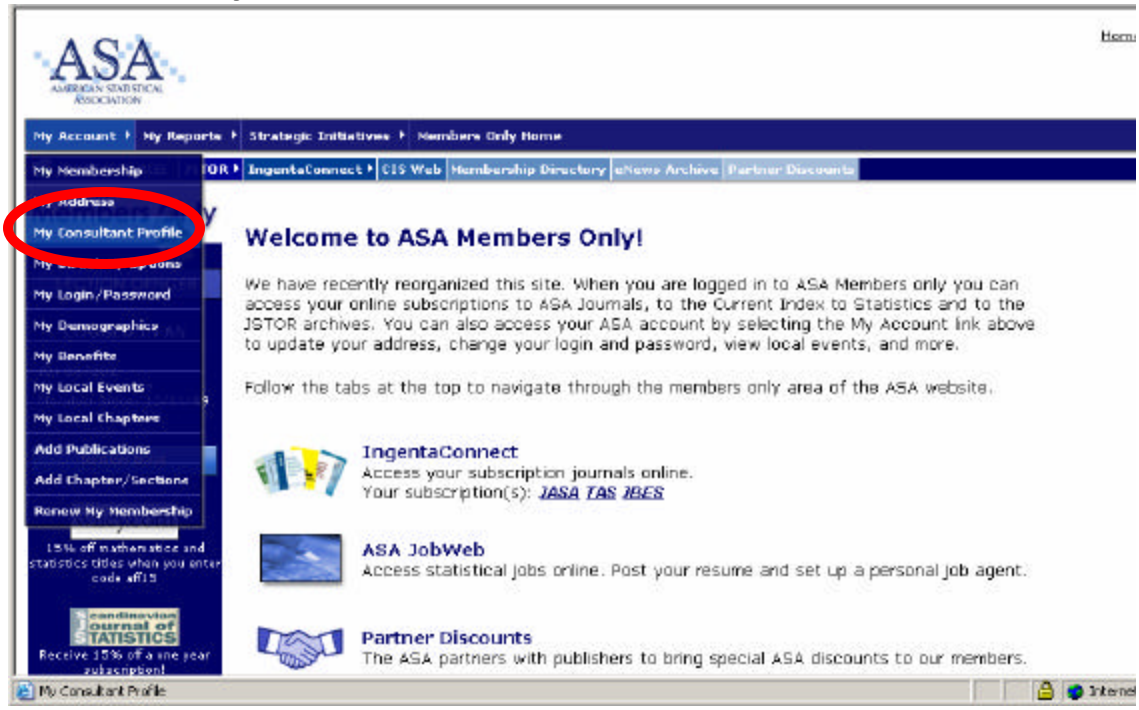


Update your Consultant Profile in the Directory of Statistical Consultants of the ASA Section on Statistical Consulting

4. at Members Only homepage click **My Account**



5. then select **My Consultant Profile**



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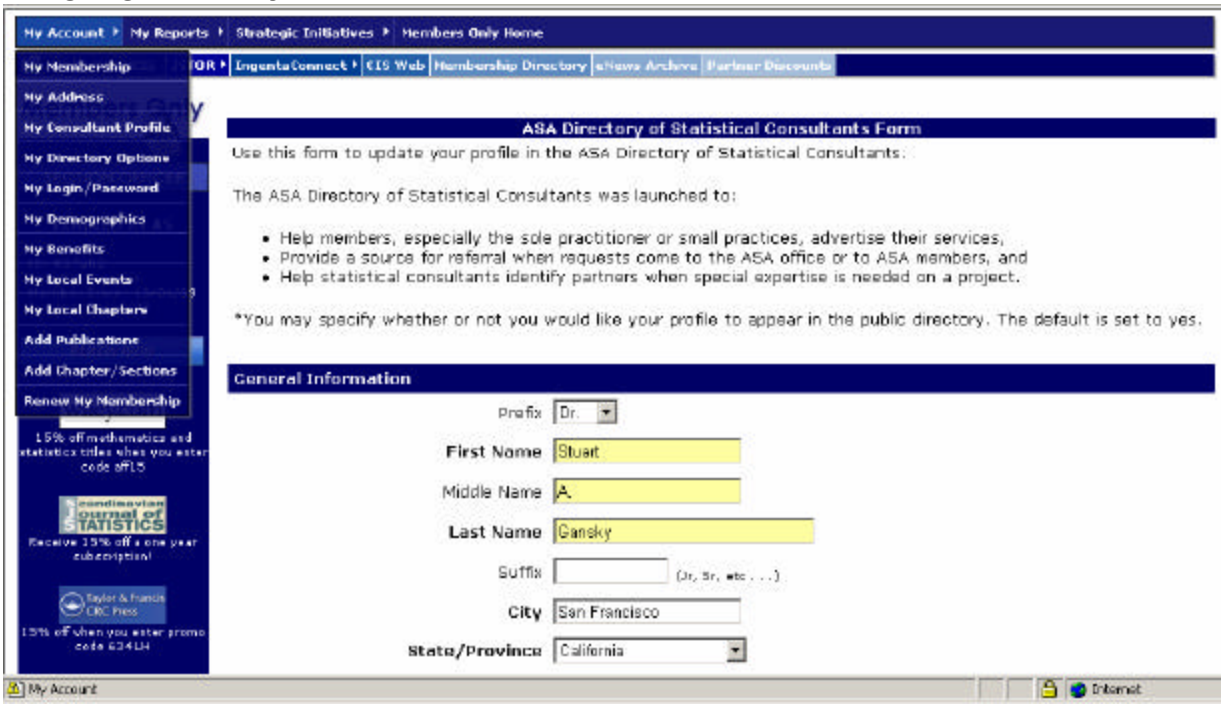
6. update your **General Information**, **Areas of Expertise**, **Application Specialties**, and **Language Fluency** and **Submit**