

# THE STATISTICAL CONSULTANT



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Section on Statistical Consulting  
Christopher Holloman, Editor; Sarah Butler, Assistant Editor

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*In this issue of The Statistical Consultant, we present two articles on the topic of statistician accreditation. For those interested in further reading, an article on accreditation is featured in the July 2008 edition of Amstat News. –Editor*

## **ASA Accreditation – Report from the Ad Hoc Committee to Propose an Approach to Individual Accreditation**

**Mary Batcher**, Ernst & Young<sup>1</sup>

The ASA task force on *Recognition of the Professionalism of Those in Business Practice* was appointed by Fritz Scheuren in 2005, during his tenure as ASA president, to take another look at the accreditation of statisticians, now that it has been successfully implemented by three other statistical societies. The task force found that an accreditation program would benefit a segment of the ASA membership including, for example, members who work in or sell their expertise to businesses, provide expert testimony, or operate internationally. The task force recommended

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## **Executive Committee of the ASA Section on Statistical Consulting**

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that the ASA Board establish a special purpose committee to develop a detailed proposal for an accreditation program that the ASA Board could vote on.

The Ad Hoc Committee to Propose an Approach to Individual Accreditation was approved in March 2007 with the following charge.

- Develop a proposal for an accreditation program for ASA individual members, which would address minimally the following operating detail and issues:
  - criteria for granting accreditation
  - length of accreditation
  - application and approval process
  - assessment of possible legal constraints
  - costs
  - other relevant details that will need to be resolved
- Coordinate with other ASA committees and sections to solicit their views and input in developing the proposal.
- Present the proposal within 24 months to the ASA Board of Directors for review.

The Ad Hoc Committee has as its task the development of a credible, respected program of optional professional accreditation for individual ASA members that will:

- provide a value-added qualification for the ASA's applied statisticians in their daily work
- attract new members to the ASA from the large community of applied statisticians working in academics, government, business, industry, private-practice, and not-for-profit organizations
- provide employers and contractors of statistical scientists with an assurance that they are dealing with professionals
- enhance the public image of Statistics and statistical scientists in the eyes of the general community
- attract students to careers in Statistics, with the additional possibility of acquiring a professional qualification

The committee includes members who are accredited by each of the three existing national statistical accreditation programs in the UK, Canada, and Australia, so it was well positioned to look at common successful elements of all three. The committee has also been able to look at unique features and has tried to take advantage of the work done by our sister associations and incorporate aspects from all of them that meet the ASA needs and circumstances.

In coordination with ASA sections and committees, the Ad Hoc Committee has created a website where interested members can find relevant articles and comment privately on the issue of accreditation. With the caveat that information is still coming in and that the recommendations are far from final, the initial program that is beginning to take shape includes the following features listed below.

The proposed accreditation program would offer two accreditation levels. The first, tentatively titled Graduate Statistician (GS), is for holders of advanced degrees in statistics from accredited US academic institutions or degrees in other quantitative fields with sufficient concentration in statistics and with less than 5 years of practical applied experience. The second, tentatively titled Professional Statistician (PS), is for the experienced statistician with 5 or more years of applied experience.

The initial application for GS would require the production of academic transcripts, ASA membership, and agreement to abide by the ASA code of ethics. The PS application would require a description of qualifying work experience, continuing professional involvement, two supporting letters, ASA membership, and agreement to abide by the ASA code of ethics. The applications would be screened by a committee of volunteers.

Annual renewal would be required, but the process would be simplified, requiring a summary of professional activities and training for the year, ASA membership, and agreement to the code of ethics.

As GS holders work toward PS status, they would be expected to identify a sponsor from among the PS members, who would be asked to volunteer to assume an advisory role for PS members and eventually provide a supporting letter for the PS application. The other letter would come from someone knowledgeable about the applicant's applied statistical work and qualified to assess its merits.

It is expected that the ASA Accreditation program would want to recognize equivalent designations from international statistical societies (RSS, SSAI, SSC).

The ASA Accreditation program would be established by a small group of exceptional candidates who would be expected to meet all the requirements of the ASA Accreditation program.

Comments from ASA members are continuously sought. They may be left at the website: <http://www.amstat.org/comm/accreditation> or offered in person at the JSM open meeting, on August 5 from 4:00 to 5:30. The committee wants to hear from the members.

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## **Academia and the Professional Statistician Community**

**Mary E. Thompson**, University of Waterloo<sup>2</sup>

(presented at the Joint Statistical Meetings, August 2007)

The focus of this discussion is the relationship between academia and the professional statistician community in Canada, especially as it relates to the past, present and future of the accreditation program.

Here is a summary of the points that I think should be made at the outset:

- Accreditation in Canada is a certification for the professional practice of statistics.
- It has growing support from academia as well as the professional statistician community.
- The accreditation 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 intersect; the nature of this intersection is complex.

To begin, I will offer some historical remarks. The predecessor association of the Statistical Society of Canada, the SSAC, was started in 1972, and the SSC in its ultimate form was established in 1978. The individual membership has always been a mix of university and non-university statisticians, but the proportion of non-university statisticians has I believe grown steadily. Of about 875 members, 34% are Canadian university faculty, 23% are Canadian university students, and 30% are Canadian statisticians outside mathematics and statistics departments. These proportions come from an informal count from an incomplete directory, and should be taken to be rough estimates. The 13% unaccounted for live outside Canada, most of them in the US.

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The institutional members are predominantly universities. The largest employer of non-university statisticians is Statistics Canada. Health Canada, the Population Health Agency of Canada, and provincial cancer boards account for sizeable numbers, but many private sector members of the Statistical Society of Canada are relatively isolated.

The impetus toward accreditation for statisticians originated with the 1989 resolution by the Canadian Association of Engineers to redefine the practice of engineering to include all scientific work done on engineering projects. Under this scheme such work would have to be carried out by professional engineers. The justification was that engineers had a code of ethical practice and were formally accountable for the quality of their work. The terms of their liability insurance may have been a factor. The resolution appeared to effectively bar scientists such as, physicists, geologists, and statisticians from work on engineering projects. Developing systems of accreditation for professionals in these areas offered a way forward.

Thus, the accreditation initiative came from the professional statistician community, in the first instance to give visibility to technical competence and ethical standards. At the same time, it was important to try to raise the standard of practice and overcome the effects of isolation by providing training and a system of continuing education. It was also argued that accreditation would increase awareness and attract new recruits to the profession.

The early champions included government statisticians, biostatisticians, statisticians in commerce and finance, and teachers of consulting. There was at the beginning a fairly strong resistance from many in academia, who were uncomfortable with the idea of regulating scientific work. One barrier to accreditation in Canada was that legislation involving regulation of professionals is a provincial matter. However, the physicists developed a model based on the awarding of a certification mark, which is in the federal jurisdiction, and the statisticians were able to follow this model.

The development of a beginning statistician requires qualification for the A.Stat. certification through courses, followed by a period of at least 6 years during which the individual has a mentor. Then the P.Stat. may be awarded if experience and competence suffice. Accreditation has thus an education component and an experience component. At universities we deliver the education component, and try to incorporate as much experience into it as time and resources permit. University faculty can also serve as mentors. About 40 of the first 100 P.Stat. members have university faculty positions.

Adherence to the Code of Ethical Statistical Practice is an important part of being accredited. The requirements include honesty, objectivity, and professionalism; care and diligence; and working within the bounds of competence. Importantly, there is an implicit commitment to career-long learning.

The Code of Ethical Statistical Practice is enforced, in the sense that the Accreditation Appeals Committee may consider a formal complaint against a P.Stat. or A.Stat. "alleging professional misconduct, professional negligence, abuse or misuse of the professional designation privilege, or conduct in breach of professional ethics." The committee can recommend that the P.Stat. or A.Stat. designation be revoked by the SSC Board.

How does statistical professional practice fit with the academic profession? Most of us would say that for university faculty, research and teaching overlap and inform each other. Professional practice overlaps strongly with the teaching side, in the sense that much consulting involves a kind of teaching, along with knowledge exchange and knowledge transfer, both outside universities and within. Methodological research can be carried out along with professional practice, but at the same time is distinct, perhaps because it tends to push at the bounds of competence.

New applications require the development of new methods, and the evaluation of old methods; they require methodological research. But research also involves risk, and thrives on controversy, while practice requires the minimizing the possibility of error and disagreement. Many projects, particularly cross-disciplinary collaborations, have elements of both research and practice, but usually in some sense as parallel processes.

What then is the impact of accreditation on our academic programs? I think it is mainly on the teaching side, and if we take our mission seriously, it can be significant. Traditionally we have taught statistics as an academic subject, with the goals of courses being to give the students an understanding of the theory behind the methods, and a sense of the motivation and the applications of the methods. Recognizing that not all of our students want to be statisticians, in fact that many of them are still quite undecided about their future careers, our hope is that they at least become aware of statistics, and attracted by the excitement of statistical science. But so far in most of our institutions we have not tried explicitly to provide a foundation for professional practice. In particular, we do not have formal instruction in ethics and professionalism. We hope that our academic programs provide the foundation for professional practice. Can academia go further and teach professional practice? And how can we help to encourage career-long learning?

















There will be systemic barriers. Universities offer statistical learning in courses, carefully designed to be sequential, but otherwise with only general unifying objectives, like “understanding” and “maturity.” Many would argue that to try to agree on more specific unifying objectives might be too confining. However, keeping professional practice in view is bound to shape curricula, and add a new dimension to our teaching.

I would like to end with what I think is the vision that the academic community has for the impact of the accreditation program:

- the development of a community of highly competent and experienced statisticians who can bring statistical methods to bear on problems of societal importance;
  - practitioners having constant access to research and its results, for example through continuing education;
  - to the extent that we can provide it as teachers and mentors, a window for students on the world of statistical practice.
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## 2008 JSM Sessions Sponsored by the Section on Statistical Consulting

*JSM starts next week, and this year the Section on Statistical Consulting is sponsoring four invited sessions and four topic contributed sessions. In addition, we'll be distributing bookmarks at the JSM registration advertising our sponsored sessions. –Editor*

12  	Sun, 8/3/08, 2:00 PM - 3:50 PM	CC-702
Generalized Linear Mixed Models with Applications in Biometry - Topic Contributed		
125  	Mon, 8/4/08, 10:30 AM - 12:20 PM	CC-707
Communicating Statistics Through Collaborative Problemsolving - Topic Contributed		
224  	Tue, 8/5/08, 8:30 AM - 10:20 AM	CC-710
Statistical Consulting in Civil Litigation - Topic Contributed		
252   Invited	Tue, 8/5/08, 10:30 AM - 12:20 PM	CC-705
Consulting Service Models for Academic Medical Centers: What Works, What Doesn't Work, Reaching Out, and Filling the Growing Need		
293   Invited	Tue, 8/5/08, 2:00 PM - 3:50 PM	CC-102
Communicating Technical Material with Nonstatisticians		
339   Invited	Wed, 8/6/08, 8:30 AM - 10:20 AM	CC-103
Statistical Consulting and Collaboration in Private Industries		
388  	Wed, 8/6/08, 10:30 AM - 12:20 PM	CC-705
Where Training Diverges: Nontraditional Paths to Statistical Consulting - Topic Contributed		
463   Invited	Thu, 8/7/08, 8:30 AM - 10:20 AM	CC-705
Communicating Statistics: Speaking Out and Reaching Out		

**Section on  
Statistical  
Consulting**  
Attend Our  
Sponsored  
Sessions

Look for our section  
BOOKMARK near the  
registration area

*Invited Sessions*

Tuesday

#252 10:30-12:20

#293 2:00-3:50

Wednesday

#339 8:30-10:30

Thursday

#463 8:30-10:20



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## 2009 JSM Invited Sessions

**Stephan Ogenstad**, Statogen Consulting, Statistical Consulting Program Chair, JSM 2009<sup>3</sup>

Even though we have not been to Denver for the JSM 2008, it is now time to start planning for the JSM 2009 meetings in Washington, DC. We do need your help!

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I am Program Chair of the Statistical Consulting Section for JSM 2009, and get to set the invited sessions.

The theme for the 2009 meetings is: "Statistics: From Evidence to Policy". You are encouraged to think broadly about the 2009 program and theme. For example, some topics might be especially appropriate given the meetings will take place in Washington, DC.

As far as invited sessions go for JSM 2009, I understand that we have four and can apply for another on a competitive basis. There is no limit on contributed sessions. I hope my particular bent will attract some different folks into the Statistical Consulting section, and enrich everyone in the process.

Here are the sessions I wish to install:

### **1. Statistical consulting in human and veterinary medicine**

*Short Description:* The purpose is to create a greater demand, availability and use of better statistical data and analysis. The goal is evidence-based policy making and implementation. Do inadequate statistics constrain national governments and donors? Good and bad examples of the use and availability of statistics. At different stages of policy design and decision-making, we need help to identify issues, to forecast the future, to inform the design and choice of policies, and to monitor policy implementation and to evaluate policy impact.

### **2. Statistical consulting in the justice-related field**

*Short Description:* The research methods can focus on a wide variety of justice-related issues, for example criminal justice issues, criminal procedure reform, *Criminal Code* reform, drug addictions, family violence, governance, human rights and privacy, international research, legal aid, mental health, organized crime, public opinion research, race and diversity, sentencing, terrorism and security, victims, and youth justice. We have all seen horrific examples of shoddy statistics in the literature; would it be helpful to promote more critical evaluation of the statistical methodologies used in the research papers?

If you are interested in contributing to either 1 or 2, or if you have ideas for a competitive session, please let me know.

Of course, there are always contributed sessions, and if none of the above matches your interest, I hope you will still contribute something in that way.

Many thanks for your help.

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## Notes from the Editor

**Christopher Holloman**, The Ohio State University<sup>4</sup>

First, I'd like to thank Drs. Batcher and Thompson for contributing articles on professional statistician accreditation for this newsletter. Clearly accreditation will provide a benefit for many statistical consultants seeking to quickly establish a level of expertise with new clients. If you have any additional thoughts on or concerns about accreditation, we'd love to hear from you; send us an e-mail, and we'll share your thoughts with the section in the next newsletter.

Also, many thanks to Drs. Grady and Ogenstad for their hard work on the 2008 and 2009 JSM programs. The program this year looks strong, and next year's is already looking interesting.

In the fall newsletter, we plan to present articles on another topic of interest to consultants. Two possibilities are the role that *pro bono* consulting should play in the professional world and the ways in which statistical consultants can use the internet to their advantage in consulting. If you would like to share your expertise on either topic, please get in touch with Sarah or me.

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