Canadian Model for Accrediting Professional Statisticians

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In March 2007, the board approved the formation of the ad hoc Committee on Accreditation of Individual Statisticians to define the details for an accreditation program, such as criteria for granting accreditation and the application process. This is one in a series of articles examining an accreditation program.

The SSC offers two levels of accreditation, the professional statistician (P.Stat.) and the associate statistician (A.Stat.). P.Stat. and A.Stat. are registered Canadian federal trademarks held by the SSC that indicate to the broader statistical and nonstatistical communities that the holder has achieved a certain level of professional competence in the understanding and application of statistical methods, maintains a level of ethical practice and professional development appropriate to areas of practice, and has good oral and written communication skills. A certificate of accreditation level and licensee number are issued to recipients of accredited status. The accredited statistician may affix the received designation to his/her list of professional qualifications. With maintenance, the P.Stat. designation is expected to be for life.

The qualification of A.Stat. indicates the holder has completed a course of study equivalent to a major or honors degree in statistics, or, in exceptional instances, has otherwise demonstrated an advanced understanding of statistical theory and its application. An A.Stat. is required to have a P.Stat. mentor for professional interactions.

SSC accreditation is for practice in Canada by a statistician who is a Canadian citizen or legally entitled to work in Canada. Accredited members of the SSC maintain their accreditation qualification with the payment of annual SSC membership fees and the annual SSC accreditation dues and forms.

An accredited member's only database with past and new areas of expertise and practice will be kept in a database posted on the SSC web site. The database will be used for networking; it also will be used for strategic planning of course offerings and assessments of strengths and gaps in the expertise available in Canada.

A public database will be available at the SSC web site with picture identification of accredited members, along with short summaries of career paths. This latter element is expected to be an invaluable resource to promote the discipline of statistics to high-school students, early undergraduates, and the broader community.

Additionally, there are two downloadable promotional brochures: Accreditation of Professional Statisticians in Canada (*www.ssc.ca/accreditation/documents/accreditation_e.pdf*) and the SSC Code of Ethical Statistical Practice (*www.ssc.ca/accreditation/documents/ethics_e.pdf*).

> "Statisticians hold quite a spectrum of professional roles in society, which would not easily be defined for a national charter."

Timeline

As the ASA, the SSC had an early failure to approve SSC accreditation. See the JSM Proceedings paper appendix for key details of the first proposal (1989–1994) and step-wise approval of the second proposal (2000–2007).

Background

The Interim Accreditation Committee was formed in 2003, following the May–June Meeting of the SSC Board, where there was approval in principle to produce accreditation documentation for the October board's consideration; the direction for the documentation was to follow that approved in the 2001 SSC referendum. The 14 members of the Interim Accreditation Committee were chosen to represent the interests of the society, the statistical profession, and various areas of statistical expertise. In particular, the slate represented major subject-matter areas, SSC geographic regions, employer sectors (university, government, industry), and English/French language capability. It also included the founder of ASSQ Accreditation and an RSS C.Stat.

A number of Canadian professional designation model-types were considered, including the following:

1. Actuarial (National Charter, by Act of Canadian Parliament)

2. Professions (Medicine, Law, Engineering; Provincial Charters)

3. Physicists (National Federal Trademark)

At the time, types 1–3 had examinations. Actuarial exams were run in conjunction with the American Society of Actuaries. Examinations were not viewed as possible without the ASA, nor were they viewed as necessary, as most formal statistical education is already graded through university courses. Statisticians hold quite a spectrum of professional roles in society, which would not easily be defined for a national charter. Provincial charters would franchise heterogeneous groups of professional statisticians in only a few provinces. The physicists' model of federal trade marking seemed feasible with national identification for a relatively small group of participants. The physicists' legal team looked after SSC accreditation, and there was a sharing of previously developed

materials and procedures that were customized to statistical perspectives and needs.

International statistical frameworks were investigated to define a context for the discipline as it is practiced in Canada:

(S1.) Association des statisticiens et statisticiennes du québec (ASSQ) Accreditation

(S2.) Royal Statistical Society (RSS) Chartering

(S3.) Statistical Society of Australian Inc. (SSAI) Accreditation

(S4.) The failed ASA certification

(S1.) ASSQ accreditation is equivalent to an undergraduate in statistics. Written work may be examined as corroborative evidence, should an applicant not have sufficient formal statistical training. There are no examinations.

(S2.) RSS chartering is equivalent to an undergraduate in statistics (G.Stat.); with five years' experience of any type, a candidate may become a chartered statistician (C.Stat.).

(S3.) Australian accreditation is equivalent to an undergraduate in statistics (G.Stat.); with five years' experience, plus extensive examination of qualifications, a candidate may be accredited (A.Stat.).

(S4.) Elements of the failed ASA certification were considered. These included curriculum guidelines for undergraduate programs in statistical science, possible examinations, recognition of the need for professional statisticians to cohesively integrate statistical theory appropriately for the area of application and be able to communicate about it, and two versions of a code of ethics (paper brochure, web site).

Ethics statements and appeal procedures were examined for Canadian actuaries, Ontario engineers, Canadian physicists, RSS chartering, Australian accreditation, and ASA certification.

SSC Accreditation Process

The main accreditation document was written with extensive interaction with the physicists'/SSC legal team to protect the interests of the SSC, *www.ssc.ca/accreditation/documents/sscaccreditation_e.pdf*. The precepts for SSC accreditation, reached by consensus of the Interim Accreditation Committee, were to be the following:

1. The most important element is the integration of statistical theory in a manner appropriate for the area of application (subject matter), and, in particular, for specific problem(s) and data.

2. It is essential that accredited members be able to communicate well, both orally and in writing, about integrated statistical work in a subject matter area.

3. Recognition of formal university coursework for A.Stat. applicants was planned from the beginning to streamline applications for those who acquire statistical educational training in primary training.

4. A solid professional statistical background may not be acquired solely with formal statistical training. Alternate career paths must be accepted if there is a demonstration of attainment of accreditation level.

5. Common background elements between other professional statistical designations would be recognized toward SSC accreditation.

6. A level of six years' cumulative professional experience in the application of statistics was set as a requirement for the P.Stat. designation, with the acquisition being possible with up to three years of applied work during graduate training (e.g., consulting, cooperative work) and up to three years of teaching applied courses or consulting.

7. Retirees would be encouraged with reduced application fees and annual accreditation dues.

8. Preventive support and mediation would be the hallmarks of SSC accreditation.

9. Mentoring of new practitioners, regardless of educational level of achievement, is necessary to assist in transition to practice: *www.ssc.ca/accreditation/documents/SSCMentoring_e.pdf*. ■

Editor's Note: *This article is excerpted from the Proceedings of the 2007 Joint Statistical Meetings presentation on Statistical Society of Canada (SSC) accreditation. The full text and extensive list of acknowledgements to those who contributed can be found in the 2007 JSM Proceedings.*

Proposals Sought for NSF-CBMS Conferences

To stimulate interest and activity in mathematical research, the National Science Foundation will support up to seven regional research conferences in 2009. Each five-day conference will feature 10 lectures about current research in the mathematical sciences. These lectures will then be summarized in an expository monograph and published. Support will be provided for about 30 participants at each conference.

Eligibility

Colleges or universities with research competence in the field of the proposal are eligible to apply. Institutions interested in improving their research efforts are especially encouraged to apply.

Proposal Preparation

Proposals must be prepared in strict adherence to the current NSF Grant Proposal Guide, which can be found at *www.fastlane.nsf.gov*, along with necessary forms and instructions. Proposals must be submitted electronically via Fastlane by April 21, 2008, and award announcements will be made in October. For more information about the series and guidelines for submitting proposals, visit *www.cbmsweb.org*.