

s LIAISON

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Dr. Sarjinder Singh is an Assistant Professor at St. Cloud State University, St. Cloud, MN, U.S.A.. He has published over 80 research papers. He introduced ideas of higher order calibration, hybridizing imputation and calibration, bias filtration, hidden gangs, several new randomized response models, median estimation using two-phase sampling, and exact traditional linear regression estimator using calibration.

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Thinking Statistically

Elephants Go to School A UNIQUE TEXTBOOK

By

Sarjinder Singh

St. Cloud State University Department of Statistics St. Cloud, MN 56301-4498 U.S.A.

Forewords by

David Robinson

and

Stephen Horn

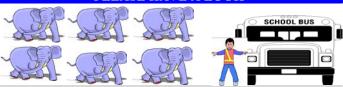
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MESSAGES

Message from the President

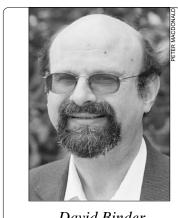
David Binder

Student Appeal

An important part of our membership his our students. Are we giving enough focus to this group? Most students are members because, by attending our annual meeting, a year of membership in the SSC is given to all those paying the non-member registration fee. Of the 152 student members in 2005, fifty-three of them joined at our 2005 meetings and 19 of them joined earlier in 2005, so that almost half of them are new to the SSC. In 2004, we had 211 student members, of which 134 joined at our meeting and 22 earlier in 2004. More significant, though, our retention of students for more than one vear is abysmally low. Of the 211 student members in 2004, only 73 of them rejoined in 2005, the vast majority of these (63) still having student membership. (All these figures may be approximate, since our database contains some inaccuracies and missing information, especially for persons who joined prior to 2005.) Of course, part of the problem is that when the students leave university and change their address, the SSC is not informed and their renewal notices, sent in December. are undeliverable. It would be helpful if all members who move inform the SSC at info@ssc.ca of their change of address.

What appeal does SSC membership have for our students? Actually, we do have much to offer to students, and for recent graduates. Clearly, our annual meetings are very important for this group, as this is where all of us learn about recent developments in our field, and we have the opportunity to meet many others with interests similar to our own. Other SSC activities in which our students can benefit are Case Studies in Data Analysis. Workshops sponsored by our sections, best student paper awards from the Survey Methods Section, student travel awards, listings for employment opportunities in Liaison, and, of course, our prestigious Pierre Robillard Award for the best Ph.D. thesis defended at a Canadian university. Our Regional Associations also have many activities during the year at which

students have participated. Also, many universities provide awards to students, using endowment money they received from the SSC. The SSC clearly has a commitment to promote statistical education and practice in Canada. What concerns



David Binder

me, though, is that once students graduate and have more time for SSC activities. most choose not to remain members. Why is this, and what can we do to change this pattern? Perhaps some of you could submit a discussion article to SSC Liaison on this topic.

One of the initiatives that the SSC is pursuing for recent graduates is accreditation as an Associate Statistician (A.Stat.). This qualification is intended to indicate that the holder has completed a course of study equivalent to a major or honours degree in statistics. Holders of this designation are committed to adhere to ethical practices, as defined by the SSC Code of Ethical Statistical Practice. They are also expected to further their own professional development. The timing for opening up this process will be discussed at the Board of Directors meeting in May. I am sure that once this process is open, the SSC will be able to provide better services and benefits to our recent graduates.

At the other end of the spectrum, we, as members of the SSC, should also be concerned with the quality of education and of knowledge in mathematics and

statistics, especially for those who have not yet entered university, as well as the public at large. To give us some food for thought on this topic, I have invited Ivars Peterson, the mathematics/computer writer and online editor at Science News, to be the speaker at the Presidential Invited Address at the London meeting. Ivars is the author or the coauthor of several books including The Jungles of Randomness and Math Trek: Adventures in the Mathzone, a fun math book for children of middle-school age. I expect Ivars' talk to be interesting to all of us. To quote Ivars on his book, The Jungles of Randomness, he says: "There are times when identifying a pattern and establishing a causal link are crucial to our lives, even when the evidence may be scanty. We notice all sorts of coincidences. Some result from chance events that turn out to be far more probable than many people imagine. Others have hidden causes, so they don't really count as coincidences. When researchers find odd clusters of certain diseases, birth defects, or cancers in their data, how can we know when these events represent the luck of the draw or whether they reflect some underlying cause?" The title of his talk in London was "MythMath: From Google to Wikis and Blogs".

Funding of research in the Statistical Sciences remains a major concern to us. Nancy Reid, our Past President, has reported to the SSC membership (through d-ssc) on the cancellation by the Natural Sciences and Engineering Research Council (NSERC) of its Reallocations Exercise. NSERC has decided that changes in funding of Grant Selection Committees are now to be decided by discipline dynamics and costs of research, using administrative data assembled by NSERC staff. The funding for the National Program on Complex Data Structures (NPCDS) was obtained through reallocations, via a joint submission between the Statistical Sciences Grant Selection Committee and the three Mathematical Sciences Institutes. Of great concern to us is which option offers the best possibility for growth, both for the Statistical Sciences Grant Selection

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Committee and for NPCDS. It seems likely that growth will come from collaborative efforts, both via new money NSERC may provide for certain types of collaborations, and from current efforts of NPCDS to establish collaborations with Canadian Institutes of Health Research. I would like to thank Nancy, as well as James Stafford, Paul Gustafson, and Charmaine Dean for all their efforts on behalf of our community.

Current issues of The Canadian Journal of Statistics, our flagship publication, is now available electronically to all who subscribe to the journal. For information on how to access this, please refer to the instructions at archimede.mat. ulaval.ca/cjs/indexes.html. Also, issues more than three years old are available at www.jstor.org Tuesday, May 16, 2006 was Census Day! This is Canada's largest survey, conducted by Statistics Canada every five years. The census provides a statistical portrait of our country and its people. The latest technologies have been used to ensure that the strict security and confidentiality requirements are met. This new method places Canada at the forefront of census taking.

This is my last message in SSC Liaison as President. It has indeed been a pleasure and an honour to serve you.



Message from the Editor

Yogendra Chaubey Concordia University

he previous issue of SSC Liaison started with a new layout which contained some deficiencies as had been pointed out by some readers. On the other hand many of you have liked the new layout; thanks for your support and complimentary words. The production team has worked hard to bring out this issue which we hope will have minimized the deficiencies of the previous one.

With a message from the President focused on the society's appeal to students, this issue takes us into the details of 'what's new' at the NPCDS. The P.Stat. programme has become an attractive feature of the society, the Board has approved 10 new P.Stat.'s, as highlighted in the Accreditation Committee report.

The community of Statistics is ever vibrant on the Canadian scene as is apparent in the Announcements and other sections. One of the notable announcements is the feature in the July 2005 issue of Amstat **News** about Statistics and Its History in Canada.



Yogendra Chaubey

The Consultant's Forum brings an article by Jeanette O'Hara Hines on the important issue of training future consultants. This article synthesizes the experiences and comments of many practitioners and is an important contribution in terms of our outlook for the future training of statisticians/consultants.

The front cover features a painting depicting the Census of Nativity about which George Styan has written a detailed ac-



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Information for Authors

The Editors of **SSC Liaison** invite all members of the statistical community to submit news, comments (in the form of Letters to the Editor) and articles of general interest to the profession. Items other than Letters to the Editor, may be submitted to the Editor or any Associate Editor. Letters to the Editor should be submitted only to the Editor.

The maximum number of words, in the original language, is: Mailbox: 375; Short article: 750; Feature article: 1750.

The Editors reserve the right not to publish any letter submitted or to publish an edited version.

count. This is a timely article because May 16th was Census Day for 2006 Canadian Census. Canada has always been at the forefront of statistical activities; it is further affirmed by the fact that for this census, households across Canada can choose the convenience of completing their census questionnaire online (see the website: www22.statcan. ca/ccr_r002_e.htm).

Finally, as always, I would like to thank all the contributors to this issue and invite members to contribute news, reports and articles of interest to other members of the SSC and to share any suggestions for improvement.

Census on the Cover

George P.H. Styan McGill University

The painting on the outside front cover of this issue of **SSC Liaison** is entitled "Census at Bethelehem" and was painted by Peter Brueghel the Elder (c. 1525 -- 1569). From 1559 onwards he dropped the 'h' in his surname and signed his paintings 'Bruegel'. The original painting is in the Musée des Beaux-Arts in Brussels; thanks go to the Musée for providing

us with a scan of the painting and allowing us to print in on the cover.

In the Bible, Luke 2 (New International Version) we find that "In those days Caesar Augustus issued a decree that a census should be takenof the entire Roman world. ... And everyone went to his own town to register."

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National Program on Complex Data Structures: What's New?

James Stafford University of Toronto

ctivity within the National Program Acontinued to ramp up in late 2005 and early 2006 with numerous workshops, SAMSI interactions, planning of several intensive training events, sponsorship of six sessions at the annual SSC meeting and new projects in Forest Ecology, Data Mining and Marine Ecology. In addition, NPCDS has formalized its relationship with EURANDOM, a European Institute whose mission is to foster research in the stochastic sciences. As a result Henry Wynn, EURANDOM's scientific co-director, has joined the NPCDS Board of Directors. Finally, NPCDS has entered a period of renewal planning that has the potential to impact the Statistical Sciences Community in Canada at a number of levels. For example, Shelley Bull, Richard Cook, Charmaine Dean, Paul Gustafson, Robert Nadon, and Jamie Stafford will all travel to Ottawa in April to meet with CIHR authorities (President, Vice-Presi-



dents, Institute Directors) to explore the feasibility of CIHR/NPCDS partnering and financial support.

Forests are an intrinsic part of Canada and its economy and the welfare of all Canadians is intimately connected with the health of Canada's forests in many ways that are not yet fully understood.

The thrust of this project is the development of innovative analytic tools to aid in the study and management of Canada's forests. They will focus on forest fires, forest ecology and forest hydrology and their interactions. Project leaders include John Braun, Charmaine Dean and David Martell. David is a forestry researcher at the University of Toronto who commented on the NPCDS inaugural workshop "I was both shocked and amazed at the large number of statisticians who demonstrated their interest in forest management problems". This project has already secured BIRS funding for a follow-up workshop, and an additional 140K in funding from the NCE GEOIDE. Remarkable accomplishments!

Data mining is a new and fast-changing discipline, which aims at the discovery of unusual and unexpected patterns in large volumes of data. It came to life in

(REPORTS)

response to the challenges and opportunities provided by the increasing number



of large, complex, high-dimensional databases covering important areas of human activity, coming from the industrial, economical, social and biomedical sectors. Data mining borrows from many fields and can be studied in many ways. This NPCDS project focuses on statistical approaches to data mining problems and their interplay with research in other disciplines. Project leaders include Hugh Chipman, Antonio Ciampi, Theodora Kourti, and Helmut Kroger and they have engaged a number of younger researchers across the country including Russell Steele, Steven Wang, and so on. They partner with Generation 5 and the Communications Security Establishment and have also been actively involved in this year's thematic program on Homeland Security at SAMSI.

Champions of NPCDS projects are often found in other disciplines and the project in Marine Ecology is no exception. A quotation by Ransom Myers, a marine biologist at Dalhousie University, reads "The demand for statistical expertise within the environmental sciences has grown far beyond our ability to answer critical conservation questions ... with NPCDS. I believe that our ability to perform ground breaking analysis will be greatly increased". The NPCDS project in Marine Ecology is concerned with developing and applying novel statistical approaches in order to analyze complex marine ecological data. The primary motivation is that

advances in observing technologies have far outpaced our ability to analyze these new and complex data types. The marine ecological data considered are highly diverse and include: marine mammal tracking data along with observations of their diet (fatty acids); satellite imagery of plankton and primary production; in situ observations of marine biogeochemical variables from autonomous moving platforms; marine gene sequence data; and fisheries data. Project leaders include Mike Dowd, Joanna Flemming, Rick Routledge and Chris Field. They receive support from the Moore and Sloan Foundations, DFO, FMAP, and a number of other sources.

Currently NPCDS is considering proposals/planning activity in "Climate and Agriculture", with the involvement of Jim Ramsay, Samuel Shen and Jim Zidek, as well as "Correlated Data in Biomedicine", with the involvement of Michal Abrahamowicz, Richard Cook, Paul Gustafson, Peter Song, and Liqun Wang.

While HQP training is common within individual NPCDS projects through student placements with interdisciplinary partners, intensive training events over short periods are being piloted this year by the program. A request for proposals last fall lead to four promising proposals, three of which have resulted in planned activity for 2006. These include the NPCDS Spring School in Statistical and Machine Learning to be held at CRM, the NPCDS/SAMSI Summer School on the Design and Analysis of Computer Experiments to be held at SFU, and the NPCDS Summer Institute of Applied Statistics for Clustered Data. Each of these uses its own innovative model for training. For example, the event at SFU consists of six days: two devoted to a series of introductory lectures on the subject of computer experiments followed by two days gaining hands-on experience with relevant software which in turn is followed by the unique experience of working side-by-side with researchers from the Los Alamos National Laboratory on a current problem in cosmology. Wow! The fourth proposal, which concerned a short course directed at social and health scientists at Canada's Research Data Centers, remains in progress.

Originally NPCDS was funded through NSERC's reallocations exercise and the current funding period for NPCDS was expected to mirror the time between reallocations. However, NSERC has cancelled its reallocation exercise and the impact on the potential renewal of NPCDS is uncertain. For the moment NSERC has extended NPCDS funding for a fifth year to permit consultation with the Statistical Sciences community on various options. Nancy Reid circulated a recent communication to the SSC newsgroup detailing developments. In addition, she solicited opinions on two potential funding envelopes for NPCDS renewal. These include a revised MFA envelope or an expanded disciplinary envelope that would include both NPCDS and individual discovery grants. What follows advocates NPCDS (I think necessarily, or unavoidably, considering the author) but may also raise some objective questions.



David Martell University of Toronto

The choice faced by our community is also faced by the wider Mathematics community with respect to future funding of Canada's three Math Institutes. A Mathematics Liaison Committee (that includes a number of statisticians) is currently campaigning against the MFA option for the Institutes, arguing, among other things, that MFA is primarily for infrastructure support and does not fund the type of community-based initiatives embodied by the Institutes. Bearing this is mind, and furthermore that NPCDS is essentially a virtual Statistical Sciences Institute with no physical infrastructure, how suitable is the MFA option for NPCDS? As our community considers this

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question it may be worthwhile to ponder several other relevant questions:

- 1. Does our community benefit from a variety of funding possibilities (individual discovery grants and collaborative team grants, i.e., NPCDS)?
- 2. Does our community benefit from the NPCDS vision to build interdisciplinary research teams with statistical leadership that will speak with authority, and on an equal footing, in the context of scientific agendas in the health and social sciences, in forestry, in the marine sciences, in genetics and genomics, in climatology, and so on?
- 3. Does our community benefit from the NPCDS vision to create training environments that produce a hybrid quantitative research that can speak the language of statistics as well as another discipline?
- 4. Does an expanded disciplinary envelope that includes NPCDS offer a degree a protection for the Discovery Grants in the context of NSERC future evolution?
- 5. What mechanism is needed to ensure the protection of the Discovery Grants from NPCDS growth in the context of an expanded envelope?

6. How substantial are the additional resources generated by NPCDS through its various matching schemes?



Ransom Myers Dalhousie University

and there are likely many others. The last of these will be addressed in the next issue of Liaison where a full accounting of NPCDS's financial activities to date will be given. However, matching contributions are substantial as reflected in an abbreviated list of partners that include: Generation 5, GEOIDE, Statistics Canada, SAMSI, EURANDOM, WESTAT, LANL, CSE, Genome Canada, GlaxoSmithKline, the Sloan Foundation, CRM, MITACS, Fields, PIMS, BIRS, AARMS, FMAP, Tem-

bec, SFM, Ministry of Natural Resources, Toronto Rehabilitation Institute, Toronto's Hospital for Sick Children, Boeing, DFO, Moore Foundation, Rivers and Smith Salmon Ecosystem Partnership Society, Agriculture and Agri-food Canada, Center for Marine Environmental Prediction, CFS, and so on. The list becomes much longer when all collaborating partners are included. A recent NCE application (which failed!) by NPCDS garnered, in the space of one month, annual matching commitments of 332K in cash and 325K in kind. These commitments were expressed in over 60 letters of support that were received (again in the space of one month - August no less!) and demonstrate the potential of the Statistical Sciences community in Canada!!

The National Program on Complex Data Structures is a joint initiative of the Statistical Sciences Community of Canada and the nation's three Mathematics Institutes. Information about the program may be found at www.fields.utoronto.ca/programs/scientific/NPCDS.

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Accreditation Committee - New P.Stat.

Judy-Anne Chapman, Ph.D., P.Stat. Chair, SSC Initial Accreditation Committee

The Accreditation Committee is pleased to welcome the following new P.Stat. members:

David A. Binder, B.Sc., Ph.D. Chhondira Chatterjee, B.Sc., M.S., M.Phil., Ph.D.

Cynthia J. Bocci, B. Comm., M.Sc., Ph.D.

David C. Hamilton, B.A., M.A., Ph.D. Calvin K. C. Lai, A.S., B.Sc., M.Math. Yin Luo, B.Sc., M.B.A., MMPA Georges A. Monette, B.Sc., M.Sc., Ph.D. Gregory R. Pond, B.Sc., M.Sc. Xikui Wang, B.Sc., M.Sc., Ph.D. Margaret L. Whitehead, B.Sc., M.Sc. Ying Zhang, B.Sc., M.A., M.Sc., Ph.D.

The second Annual General Accreditation Meeting will take place at the Annual

SSC Meeting, and all those accredited or considering an application for this designation are encouraged to attend to help plan accreditation programming. Carl Schwarz, the incoming new Chair of the Initial Accreditation Committee, and any new incoming Accreditation Committee members will be introduced at the meeting. Those who are retiring after years of dedicated service will be thanked for their huge efforts.

A history of SSC Accreditation will be written shortly for SSC records and for several invited submissions to ASA publications.

The next deadline for P.Stat. applications is June 30th, 2006.

REPORTS



David Binder



Chhondira Chatterjee



Cynthia J. Bocci



David C. Hamilton



Calvin K.C. Lai



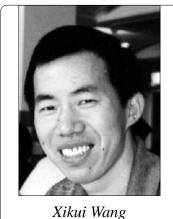
Yin Luo



Georges A. Monette



Gregory R. Pond





Margaret L. Whitehead



Ying Zhang

ANNOUNCEMENTS

Amstat News Features Statistics Canada

he July 2005 issue of Amstat News featured an article on Government Statistics entitled "Government Statistics Yesterday: Statistics and Its History in Canada" by Robert Lussier and Robin Redmond, Statistics Canada. Here are some highlights.

- · The British North America Act was passed in 1867 and was the first piece of legislation to give the Canadian government the authority to collect social and economic statistics and conduct a census of the population.
- · By the 1880's the data collection activities in Canada were well underway: The Census of 1871 had just been completed successfully, the routine collection of crime statistics had begun, railways were recording transportation data, the Customs Department had be-

gun collecting import and export data, and statistical information such as bank statements and insurance records were being amassed.

• The Census and Statistics act of 1905 introduced Canada to the modern age

of statistics by creating a permanent Census and Statistics Office.

 In 1918 the Dominion Bureau of Statistics was founded bringing together the statistical activities that had been collected previously by individual government departments under a single institution.

· In 1971, the Dominion Bureau of Statistics was replaced by the current agency known as Statistics Canada.

A Satellite Workshop at Concordia University

Jose Garrido Concordia University

1st International Workshop on Gerber-Shiu Functions will be held at Concordia University

> Montreal, Canada August 7–8, 2006

The purpose of this satellite workshop is to sum up the latest theoretical developments on Gerber–Shiu functions and to stimulate applications, both in finance and risk theory. A small number of 1-

hour invited talks is planned, with ample opportunity for discussions. Confirmed invited speakers include: Dr. Hansjoerg Albrecher (Austrian Academy of Sciences), Prof. Hans U. Gerber (U. de Lausanne, Switzerland), Prof. X. Sheldon Lin (U. of Toronto), Prof. Elias S.W. Shiu (U. of Iowa), Dr. Qihe Tang (U. of Iowa).

The workshop will be held just prior to the Actuarial Research Conference (see ARC 2006 at www.crm.umontreal. ca/Arc2006/index e.html), where con-

tributed papers should be submitted. All participants of ARC 2006 and other interested researchers are welcome to participate in the workshop. Please check our website (www.mathstat.concordia.ca/gerber_shiu2006) for details on the program, registration and accommodation.

Organizers: Jose Garrido, Patrice Gaillardetz, Qihe Tang, Xiaowen Zhou. Contact: **ger-shiu@mathstat.concordia.ca**.

SCRA 2006-FIM XIII: Thirteenth International Conference of the Forum for Interdisciplinary Mathematics on Interdisciplinary Mathematical and Statistical Techniques

September 1–4, 2006 New University of Lisbon and Polytechnic Institute of Tomar, Portugal

he Forum for Interdisciplinary Mathematics, the Department of Mathematics, New University of Lisbon and the Polytechnic Institute of Tomar, Portugal, are proud to co-organize a four-day International Conference in Lisbon, Portugal. This year's conference theme is Interdisciplinary Mathematical and Statistical Techniques. The major concentration of the conference's academic activities will be in mathematical and statistical sciences including, but not limited to, Actuarial and Financial Mathematics, Statistics and Applications, Biostatistics, Combinatorics, Computer and Information Sciences, Differential Equations, Distribution Theory and Near Exact Distributions,

Environmental Statistics, Experimental Designs, Extreme Values, Forest Mensuration Modeling, Forest Economics, Graph Theory, Linear Statistical Inference, Mathematical Economics, Mathematics, Multivariate Statistics, Nonparametric Statistical Inference, Operations Research, Probability/Stochastic Processes, Public Health, Quality Control, Reliability and Life Testing, Sampling, Semi Groups, and partner areas. Those wishing to contribute outside these areas are welcome to submit their abstracts. Suggestions for further topics and proposals to organize a symposium should be sent to the organizers.

The conference will feature separately a section on student paper competition. A selection panel will judge the presentations and make recommendations for awards. In addition, the conference will devote a session on "Editors Round Table;" to help scholars appreciate the

"current trends and techniques" of scholarly publications.

The speakers who have accepted to speak at the conference are: C. R. Rao (Penn State), Barry Arnold (University of California, USA), Carlos Brauman (Evora, Portugal), Tadeusz Calinsky (Poznan, Poland), Angela Dean (Ohio State, USA), Malay Ghosh (Florida, USA), Ivete Gomez (Lisbon, Portugal), Benjamin Kedem (Maryland, USA), and John Stufken (Georgia, USA).

Conference website: scra2006.southala-bama.edu.

For further details, please contact:

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Survey Methodology Gets a New Editor

Don Royce, Director General, Methodology Branch, Statistics Canada

Statistics Canada is pleased to announce that John Kovar will be the new Editor in Chief of Statistics Canada's flagship journal *Survey Methodology*. John has a wealth of experience in the field of survey methodology and is currently the Director of the Business Survey Methods Division at Statistics Canada. He is well known in the international statistical community through his work with the Statistical Society of Canada, the IASS, the ISI, the UN/ECE, the ASA, and many other organizations.

Survey Methodology publishes articles dealing with various aspects of statistical development relevant to a statistical agen-



John Kovar

cy, such as design issues in the context of practical constraints, use of different data sources and collection techniques, total survey error, survey evaluation, research in survey methodology, times series analysis, seasonal adjustment, demographic studies, data integration, estimation and data analysis methods, and general survey systems developments. The emphasis is placed on the development and evaluation of specific methodologies as applied to data collection or the data themselves. Survey Methodology is published twice a vear, in June and December.

John Kovar can be contacted at **John. Kovar**@statcan.ca.

Compstat 2006 Satellite Workshop on Data and Information Visualization 2006

August 24–25, 2006 Humboldt-Universität zu Berlin

The Workshop on Data and Information Visualization will provide a forum for state-of-the-art results and the latest advances in the art of visualizing complex data and information structures. Contributed papers will be published in a special

issue of the Computational Statistics journal (comst.wiwi.hu-berlin.de).

The workshop will be preceded by a one-day tutorial on August 23rd, held by Prof. Jerry Friedman from Stanford University who will conduct an interactive workshop on predictive data mining and decision trees, focusing on important tools and methods for the Insurance and Finance sectors. The target groups consist of

statisticians, business analysts and data miners working in research, marketing and fraud and academics with an interest in applications.

For further information, please see the homepage of the workshop *ise.wiwi.hu-berlin.de/div2006* or contact Uwe Ziegenhagen (E-mail: *ziegenhagen@wiwi.hu-berlin.de*).

New Reviewers Request for Technometrics

S. Ejaz Ahmed University of Windsor

Dear Fellow SSC Members:

As some of you may already know, I have recently been named the Book Review Editor for the statistical journal *Technometrics*. I am sending this email as a request for your assistance. The Book Reviews Section of *Technometrics* publishes reviews of books that are directly relevant to the practice of statistics in the physical, chemical, and engineering sciences. We are currently seeking additional reviewers

for new books. Please let us know your interest by taking a couple of minutes to fill in this form.

Technometrics Book Reviewers Interest Survey

To reply to this form: Print and mail a hardcopy to the mail address below. Please fill in all information:

Name and Title: Company: Office Phone: FAX Number: E-mail Address: Web Address:

Yes, I would like to review a book for **Technometrics**.

List statistical areas of interest.

If you have any particular forthcoming book(s) that you would like to review, please provide the title, author and publisher.

___ No, I am not interested.

If you know of anyone who may be interested, please provide name, address, and e-mail of colleague(s) to contact.

Reply by e-mail to: **techeditor@uwindsor. ca** or mail hardcopy to address below.

Thank you for your cooperation and support for Technometrics.

S. Ejaz Ahmed, Ph.D.
Book Review Editor - TECHNOMETRICS
Professor and Head - Department of
Mathematics and Statistics

Director - Centre for Statistical Consulting, Research & Services University of Windsor Windsor, ON N9B 3P4 Telephone (519) 253-3000 Ext. 3015 Fax (519) 971-3649

Email: **seahmed@uwindsor.ca**Webmail: **www.uwindsor.ca/seahmed**

The Carleton Applied Probability Workshop Ottawa, June 1–3, 2006

Jill Murray Carleton University

The Carleton Applied Probability Workshop is in memory of Prof. Amitava Bose. The organizers are Zhicheng (Jason) Gao, Antal Jarai, Daniel Panario, and Yiqiang Zhao.

The invited speakers are:
Fan Chung Graham (University of California, San Diego)
Jim Dai (Georgia Institute of Technology)
John Dixon (Carleton University)
Jim Fill (The Johns Hopkins University)
Ingemar Kaj (Uppsala University)

Boris Pittel (The Ohio State University) Nick Wormald (University of Waterloo) Susan Xu (Penn State University)

More information can be found at www.fields.utoronto.ca/programs/scientific/05-06/applied probability.

Please follow the webpage for information on how to submit an abstract for contributed talks.

Graduate students and and postdocs are especially encouraged to present a contributed talk and apply for financial support (see the webpage of the workshop).

Important deadlines:

- Registration on-line to Monday May 22; after that date registration will be on-site.
- Application for students travel support: Monday May 15.
- Abstract submission deadline for contributed talks: May 15.

UPCOMING CONFERENCES AND MEETINGS

June

June 4-7, SRCOS/ASA Summer Research Conference, Kerrville, Texas, USA. For additional information on junior speaker and graduate student support, please e-mail Jack Tubbs at *jack_tubbs@baylor.edu*.

June 5-9, PROBASTAT 2006, 5th International Conference On Probability And Statistics, Smolenice Castle, Slovakia. For details, see the web site *aiolos.um.savba.sk*/~viktor/probastat.html.

June 7-9, Joint Research Conference 2006 on Statistics in Quality, Industry, and Technology (JRC 2006), Knoxville, Tennessee, USA. For details see the web site web.utk.edu/~leon/JRC2006.

June 13–15, The 2nd IMT-GT 2006 Regional Conference on Mathematics, Statistics and Applications, The Gurney Hotel, Penang, Malaysia. Please see the website *math.usm.my/imtgt* for details.

June 13-17, 15th International Workshop on Matrices and Statistics(IWMS-2006), Uppsala, Sweden. The purpose of the workshop is to stimulate research, in an informal setting, and to foster the interaction of researchers in the interface between matrix theory and statistics. Invited Speakers include T.W. Anderson, G.H. Golub, D.A. Harville, S. Van Huffel, I. Olkin, F. Pukelsheim, Y. Saad, M. Srivastava. There will be a Special Session in honour of Professor Tarmo Pukkila's 60th Birthday. For further information, please visit www.bt.slu.se/iwms2006/iwms06. html and/or contact Dietrich.von.Rosen@ bt.slu.se.

June 14-17, ICSA 2006 Applied Statistics Symposium, Storrs, Connecticut, USA. For details see the web site www. icsa.org.

June 15-17, Conference on Ordered Statistical Data and Related Topics, Mashaad IRAN. For more information, please visit osdrt.um.ac.ir.

June 15-17, useR! 2006, Vienna, Austria. This second world meeting of the R user community will focus on R as the 'lingua franca' of data analysis and statistical computing, will provide a platform for R users to discuss and exchange ideas on how R can be used to do statistical computations, data analysis, visualization and exciting applications in various fields, and will give an overview of the new features of the rapidly evolving R project. (Website: www.R-project.org/useR-2006)

June 18-21, 2006, BNP 2006, Fifth Workshop Bayesian Nonparametrics, Jeju, South Korea. For more info, see the web site: srccs.snu.ac.kr/Workshop/06BNP/06.htm.

June 18–22, TIES 2006-The annual meeting of the International Environmetrics Society, Kalmar Sweden. For more info, see the web site www.mai.liu. se/ties2006.

June 25-28, INFORMS International Hong Kong 2006, Hong Kong, China. For more information, visit the web site www. informs.org/Conf/Hongkong06.

July

July 2-7, ICOTS-7, International Conference on Teaching of Statistics, Salvador (Bahia), Brazil. The International Association for Statistical Education (IASE) and the International Statistical Institute (ISI) are organizing the Seventh International Conference on Teaching Statistics(ICOTS-7) which will be hosted by the Brazilian Statistical Association (ABE). For details, visit the web site at www.maths.otago. ac.nz/icots7.

July 12-14, Methodology of Longitudinal Surveys (MOLS) 2006, University of Essex, United Kingtdom. See the web site www.iser.essex.ac.uk/ulsc/mols2006 for details.

July 16-21, XXIII International Biometric Conference (IBC2006), to be held on the downtown campus of the host institution, McGill University, in Montréal. Organized and sponsored by the International Biometric Society and the National Research Council of Canada. For further information on the conference and updates on the program, please visit: www.ibc2006.org.

July 18-20, IME2006, 10th International Congress on Insurance: Mathematics and Economics, Catholic University of Leuven, Belgium. For further details see conference website: www.kuleuven.belime2006.

July 30 – August 4, IMS Annual Meeting and X Brazilian School of Probability

(XEBP), Instituto Nacional de Matématica Pura e Applicada (IMPA), Rio de Jeneiro, Brazil. For details, see the web site www. imstat.org/meetings/IMS2006.

August

August 1-5, Ninth Meeting of New Researchers in Statistics and Probability, University of Washington, Seattle, WA. The purpose of this meeting, to be held just before JSM2006 in Seattle, WA, is to promote interaction among new researchers primarily by introducing them to each other's research in an informal setting. For details, please visit the conference web site, www.stat.ohio-state.edu/~pfc/NRC.

August 6-10, 2006 Joint Statistical Meetings, Seattle, Washington, USA. JSM (the Joint Statistical Meetings) is held jointly with the American Statistical Association, the International Biometric Society (ENAR and WNAR), the Institute of Mathematical Statistics, and the Statistical Society of Canada. For detailed information, contact <code>jsm@amstat.org</code> or phone toll-free (800) 308-8943 or follow the link for 2006 Joint Statistical Meetings from the URL <code>www.amstat.org/meetings/index.cfm?fuseaction=main</code>.

August 7-8, 1st International Workshop on Gerber–Shiu Functions, Department of Mathematics and Statistics, Concordia University, Montreal, Quebec. This is a satellite workshop, held just prior to the 2006 Actuarial Research Conference at Université de Montréal. For details, see www.mathstat.concordia.ca/gerber shiu2006.

August 24- 25, Compstat 2006 Satellite Workshop on Data and Information Visualization 2006, Humboldt-Universität zu Berlin, School for Business and Economics. For further details, visit the workshop home page *ise.wiwi.hu-berlin.de/div2006*.

August 27-31, ISCB27 Geneva 2006, ISCB 2006 in Geneva will provide a forum for the international exchange of methods, applications, and theory of biostatistics in medical research and medical practice. For more information, contact David W.

Warne (david_w_warne@bluewin.ch), or visit the web site www.iscb2006.info.

August 28-September 1, COMP-STAT2006: The 17th conference of the IASC, Rome, Italy. See the website w3.uniroma1.it/compstat2006 for details.

September

September 1-4, SCRA 2006-FIM XIII: Thirteenth International Conference of the Forum for Interdisciplinary Mathematics on Interdisciplinary Mathematical and Statistical Techniques, New University of Lisbon and Polytechnic Institute of Tomar, Portugal. For further details, see the conference website: scra2006. southalabama.edu. or contact: Sat Gupta (sngupta@uncg.edu), Carlos Coelho (cmac@fct.unl.pt) or Satya Mishra (mishra@jaguar1.usouthal.edu). [See details in the Announcement section.]

September 6-8, IAOS Conference Ottawa 2006, Ottawa, Ontario. Statistics Canada will be hosting the 2006 Conference of the International Association for Official Statistics (IAOS) to be held in Ottawa, Canada, September 6-8, 2006. The IAOS Conference Ottawa 2006 has adopted as its principal theme the subject People on the Move: Measuring Environmental, Social and Economic Impacts Within and Between Nations. To register, or for more information, please visit www. iaos 2006 conf.ca.

October

October 11-14, The Sixth Annual Winemiller Conference: Methodological Developments of Statistics in the Social Sciences, University of Missouri, Columbia, MO, USA. The aim of this conference is to foster collaboration among mathematical statisticians and quantitatively-oriented social science researchers. Pre-conference workshops on October 11 will provide previews of popular statistical software (PROC CALIS in SAS and longitudinal and multilevel-xt-commands in Stata). Further information, registration form and tentative program is available at www.socialsciencestatistics.com.

(UPCOMING CONFERENCES AND MEETINGS)

October 26-28, Multivariate Methods in Environmetrics, Chicago, Illinois, USA. A three-day conference entitled, "Multivariate Methods in Environmetrics," is being organized by the Statistics and Environment Section of the American Statistical Association (ASA) and the Center for Integrating Statistical and Environmental Science (CISES) at the Department of Statistics, University of Chicago. For more information, visit the web site: galton. uchicago.edu/~cises/events/envr/index. html.

November

November 1-3, The 23rd International Methodology Symposium "Methodological Issues in Measuring Population Health", organized by Statistics Canada, Chateau Cartier, Otawa/Gatineau. For more information, send e-mail inquiries to symposium2006@statcan.ca or contact Joanne Moloney by phone at 613-951-1469 or by e-mail at joanne.moloney@statcan.ca. You may also visit the conference web site www.statcan.ca/english/conferences/symposium2006.

November 1-3, Annual Conference of the South African Statistical Association, Stellenbosch, South Africa. This conference is annually the major event of the South African Statistical Association. This year it will be held in Stellenbosch (about 50 kms from Cape Town), to coincide with the 60th anniversary of the Department of Statistics and Actuarial Science at the University of Stellenbosch. The conference will be preceded by two days of workshops on 30 and 31 October. For more information, please visit the web site www.sastat.org.za.

November 6-10, 13th Biopharmaceutical Applied Statistics Symposium (BASS XIII), Savannah, Georgia, USA.BASS XIII is jointly sponsored by the Center for Biostatistics in the Jiann-Ping Hsu College of Public Health and the Department of Biostatistics at the Medical College of Virginia. Please visit bass.georgiasouthern.edu for registration infromation or contact Shelly Bass, Registrar at sbass@georgiasouthern.edu or 912-486-7906 or Karl Peace at kepeace@georgiasouthern.edu or 912-486-7905.

December

December 4–9, 62nd Annual Deming Conference on Applied Statistics, Atlantic City, New Jersey, USA. The purpose of this three-day conference on Applied Statistics is to provide a learning experience for statisticians. The conference is composed of twelve three-hour tutorials on current statistical topics of interest. Most tutorials are based on recently published books by recognized experts in the field. The full program will be available on the conference website www.demingconference.com/deming2006 on June 1, 2006

December 29 - 31, Sixth International Triennial Calcutta Symposium. Kolkata 700019, India. Calcutta Statistical Association jointly with the Department of Statistics, Calcutta University is organizing the Sixth International Triennial Calcutta Symposium on Probability and Statistics during December 29-31, 2006. On the occasion of the 100th birthday of late Professor S.N.Roy, there will be a special session on December 29, 2006. Intending participants are requested to contact the Convener of the organizing committee for further details: Dr. Asis Kumar Chattopadhyay Department of Statistics Calcutta University 35 Ballygunge Circular Road Kolkata 700019, India. E-mail: akcstat@ caluniv.ac.in or asis stat@yahoo.com or sixtricalsy@yahoo.com.

2007

January 16-18, The 6th Annual Hawaii International Conference on Statistics, Mathematics and Related Fields, Honolulu, Hawaii, USA. The main goal of this conference is to provide an opportunity for academicians and professionals from various statistics and/or mathematics related fields from all over the world to come together and learn from each other. For further information, please see the conference website: www.hicstatistics.org.

March 27-30, Statistik unter einem Dach / Statistics under one roof, Bielefeld, Germany First joint conference of German Statisticians organized by DAGStat-Deutsche Arbeitsgemeinschaft Statistik/German Statistical Working Group. Confirmed invited speakers are: Raymond J. Carroll.

Lon Cardon, Ralf Korn, Helmut Lütkepohl, Johann Pfanzagl. For further information, please see the conference web-site: **www. statistik2007.de**.

June 9-13, SSC-2007, Annual Meeting of the Statistical Society of Canada, St. Johns, New Foundland For information, contact the Local Arrangements Chair: Brajendra Sutradhar, Department of Mathematics and Statistics Memorial University of Newfoundland, St. John's, NL, Canada A1C 5S7 E-mail: bsutradh@math.mun.ca. Tel: (709) 737-8731 Fax: (709) 737-3010.

June 18-21, International Conference on Establishment Surveys III, Montreal, Quebec. For more information please send an e-mail message to ices3@census.gov.

July 9 – 11, 5th International Conference on Multiple Comparison Procedures, Vienna, Austria, t he conference intends to bring statisticians from academy, industry and regulatory agencies together to present new research findings in multiple testing. For further details see the conference website: www.mcp-conference.org.

July 29-August 2, 2007 Joint Statistical Meetings, Salt Lake City, Utah. For detailed information, contact <code>jsm@amstat.org</code> or phone toll-free (800) 308-8943 or follow the link for 2006 Joint Statistical Meetings from the URL <code>www.amstat.org/meetings/index.cfm?fuseaction=main</code>.

August 22-29, International Statistical Institute 56th Biennial Session, Lisboa, Portugal. For details, see www.cbs.nl/isi.

2008

May 25-30, SSC-2008, Annual Meeting of the Statistical Society of Canada, Ottawa Congress Center, Ottawa, Ontario. Pierre Lavallée [E-mail: Pierre. Lavallee@statcan.ca] is the local arrangements coordinator for this meeting. One goal for the program is to have some overlap with the joint meeting of the Canadian Math Society and the corresponding French society.

UPCOMING CONFERENCES AND MEETINGS

August 3-7, 2008, Joint Statistical Meetings, Denver, Colorado, USA. For detailed information, contact <code>jsm@amstat.org</code> or

phone toll-free (800) 308-8943 or follow the link for 2008 Joint Statistical Meetings from the URL **www.amstat.org/meetings/**

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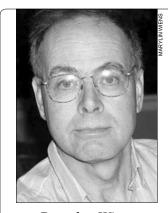
CJS: Coming Attractions

Doug Wiens University of Alberta, Editor, CJS

hile remaining international in scope, the June 2006 number of The Canadian Journal of Statistics/La revue canadienne de statistique illustrates well the breadth and novelty of statistical research in Canada. The opening paper, by Louis-Paul Rivest (U. Laval) and Ted Chang (U. Virginia), is 'Regression and correlation for 3×3 rotation matrices'. This work investigates a regression model for orthogonal matrices, focussing on the special case of 3×3 rotation matrices. The methodology has applications in kinematics, and is illustrated with examples dealing with postural variations of subjects performing a drilling task, and with the calibration of a camera system for motion analysis using a magnetic tracking device.

In 'Survival analysis based on the proportional hazards model and survey data', Christian Boudreau and Jerald Lawless (both U. Waterloo) propose methods, based on the stratified Cox proportional hazards model, that account for the complex survey designs often used to collect data in large scale longitudinal surveys. The application of the techniques is illustrated by an analysis of jobless spells in Statistics Canada's Survey of Labour and Income Dynamics.

Edit Gombay (U. Alberta) and Abdulkadir Hussein (U. Windsor), in 'A class of sequential tests for two-sample composite hypotheses', propose a class of statistics based on Rao's scores, for the sequential testing of composite hypotheses concerning the comparison of two treatments. Comparisons with nonsequential and group sequential tests are made through Monte Carlo simulations, and through a case study of a two-armed comparative clinical trial in patients with adult leukemia.



Douglas Wiens

Don Mcleish and Cyntha Struthers (both U. Waterloo) consider the problem of estimating a regression parameter when some data on a subvector of the covariate vector are missing at random. In 'Estimation of regression parameters in missing data problems', they compare several estimators with the profile estimator with respect to bias and standard deviation, considering both discrete and continuous responses and covariates.

Sanjoy Sinha (Carleton U.) notes that the method of quasi-likelihood, commonly used to fit generalized linear models to longitudinal data, can be highly influenced by the presence of potential outliers in the data. In 'Robust inference in generalized linear models for longitudinal data', he develops a robust quasi-likelihood method to address this problem. The practical advantages of the added robustness are illustrated in a comparative analysis of epilepsy data with some highly influential outliers.

Xiaogang Wang (York U.), in 'Approximating Bayesian inference by weighted likelihood', proposes to use weighted likelihood

to approximate Bayesian inference when no external or prior information is available. The estimate is derived by minimizing the empirical Bayes risk under relative entropy loss, and is illustrated on a data set arising in an example of educational testing.

A new method for constructing confidence intervals is described by Borek Puza and Terence O'Neil (both Australian National U.) in 'Interval estimation via tail functions'. The idea is to specify the tail cutoff areas in terms of a function of the target parameter rather than as constants. This function can be engineered so as to provide shorter confidence intervals when prior information is available. It can also be used to improve the coverage properties of approximate confidence intervals.

In 'A Bayesian signal detection procedure for scale space random fields', M. Farid Rohani, Khalil Shafie (both Shahid Beheshti U., Tehran) and Siamak Noorbaloochi (U. Minnesota) consider the problem of searching for activation in brain images obtained from functional magnetic resonance imaging (fMRI), and the corresponding signal detection problem. A Bayesian procedure is developed to detect signals existing within noisy images when the image is modelled as a scale space random field. The method is applied to fMRI data collected in an experiment conducted by the Montreal Neurological Institute.

Marlos Viana (U. Illinois at Chicago) and Hak-myung Lee (Abbott Laboratories, Parsippany, N.J.) study relationships induced by the concomitants of order statistics, i.e., the ordered observations of one of a pair of samples, with the ordering induced by the natural ordering in the other sample. In 'Correlation analysis of ordered

(CJS: COMING ATTRACTIONS)

symmetrically dependent observations and their concomitants of order statistics', these results are applied to a problem which arises in vision research.

Finally, in 'Pseudo-likelihood estimation in ARCH models', Kanchan Mukherjee (U. Liverpool) provides an asymptotic theory for a class of pseudo-likelihood estimators in the autoregressive conditional

heteroscedastic model. The method is in particular applicable to heavy-tailed error distributions, with no third or higher order moments.

CONSULTANT'S FORUM

How and How Well Do We Train Future Consultants?

Jeanette O'Hara Hines University of Waterloo

At the SSC meetings last June in Saskatoon a session entitled 'How and how well do we train future consultants?' generated a lot of interest. This article was requested to summarize the material presented by the panel and will hopefully stimulate further dialogue about the training of our future consultants.

The session was organized by Jeanette O'Hara Hines, University of Waterloo and chaired by Gordon Hines, University of Guelph. The focus of the various talks ranged from the intended objective and structure of a statistical consultation with a client, through consulting courses currently being offered, to an assessment of one such course, and then to the requirements of employers (in the pharmaceutical industry). Comments by audience members were equally wide ranging. The invited speakers were David Bellhouse, Department of Statistics and Actuarial Science, University of Western Ontario; John Petkau, Department of Statistics, University of British Columbia; Jeanette O'Hara Hines, Department of Statistics and Actuarial Science, University of Waterloo; Heather Thiessen Philbrook, Kidney Clinical Research Unit, London Health Science Centre; and Jamie Myles, Pfizer. The first three speakers have been involved in statistical consulting both internally and externally to the university. As well, they have all conducted courses on statistical consulting for graduate students. Heather graduated in 2004 with a Master's in Biostatistics from the University of Waterloo, and Jamie has had many years of experience as a statistical consultant in the pharmaceutical industry.

David Bellhouse has had experience in designing a statistical consulting course



Jeanette O'Hara Hines

for the purpose of training graduate students at Western. He indicated that a major objective of the consulting unit in his department was to encourage joint research between the statisticians and other researchers. In his presentation, David discussed the various steps in a consulting process using an informative flow chart; this flow chart, reproduced below, is generic, to guide a wide variety of consultants.

This flow chart is a valuable tool for any statistical consulting course since it allows the instructor to outline and expand on the various steps in the consulting process. In particular, it demonstrates to budding consultants that the consulting process is definitely not linear. The flow chart has two places of possible iteration, the first, labeled 1, between 'Planning' and 'Entry' and the second, labeled 2, between 'Evaluation' and 'Planning'. These indicated iterations are there to remind consultants that any plan of design and analysis is, or should be, open to changes or adjustments. These changes or adjustments can result because of changes or limitations in the research plan or as the consultant gets a clearer understanding of the research project. David indicated that the first step titled 'Scouting' was often forgotten. This step helps statistical researchers develop contacts for possible future joint research.

Unfortunately, due to financial constraints, the consulting unit has been disbanded at Western, and the consulting course has been dropped.

The pair of compulsory consulting courses in a two-semester sequence run by John Petkau and his colleagues at the University of British Columbia could be used as a model for other statistics departments interested in developing or improving a consulting program for training graduate students.

The first course discusses the basic skills of statistical consulting, with oral and written communication with non-statisticians being an important focus. Regression and experimental design courses are prerequisites. The course takes on slightly different forms depending upon which faculty member is offering the course. John uses eight to ten statistical consulting case studies to provide the students with training in interviewing clients, translating subject-area problems into statistical terms, isolating key statistical aspects of problems and identifying appropriate statistical methodology for problems. For each case study, the students are given a page of description in the client's language outlining the scientific problem and the issues to be addressed, perhaps along with a partial data listing. The students then submit three "key questions" and interview the "client" (role-played

CONSULTANT'S FORUM

by John or someone originally involved with the case). For the next class, the students review the client interview and present a prepared one-page summary of understanding and advice suitable for the client. Further work involves carrying out two to three data analyses along with writing a report in which the technical material, methodological tools and findings are summarized. The course also has practicing statistical consultants as occasional guest lecturers. Students are graded as Pass or Fail.

The second course provides real-life consulting experience with students being involved, under supervision, in consulting projects obtained either through the department's consulting unit or from a mail-out solicitation of projects from the university research community. The students must be involved with at least four such projects in which they meet with the client and write a report to the client providing their advice and summarizing any data analyses. The projects and resulting reports are also discussed in class. The client is subsequently asked to fill out a feedback report with a copy being given to the consulting student. This course is also graded as a Pass or Fail.

This pair of courses is quite demanding of faculty time, especially for reviewing written materials. Experienced faculty members are essential for conducting these courses. While the students find the courses challenging, they come to appreciate the resulting training.

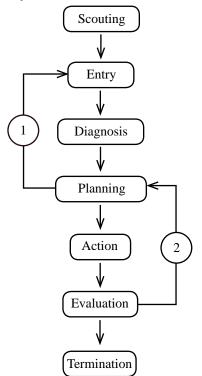
The consulting course available at the University of Waterloo has been taught in the last few years by Jeanette O'Hara Hines. This course is now mandatory only for those graduate students getting a Master's degree in biostatistics, so that only students truly interested in consulting will take the course - thus encouraging lively class discussions. This course is given in the spring semester, which is the final or next to final semester for most of the Master's students. One difficulty results from a few students who entered the program in January or May since these students will not have had all of the desired prerequisites (regression, experimental design and sampling).

Some of the aims of the course are getting the students:

- •to communicate effectively with clients both orally and in writing
- to ask good questions in a consulting session and to rephrase what has been said by client
- •to have positive body language.

The course involves:

- four or five clients coming to class as in a 'first' visit to a consultant
- reports in non-technical language subsequently prepared by the students to two of these clients
- experienced statisticians who talk about their jobs



- student attendance and participation in consulting sessions with experienced consultants
- formal presentations by the students using the material from Janice Derr's Statistical Consulting: A Guide to Effective Communication
- lectures by the instructor on statistical techniques not usually covered in our courses (for example repeated measures ANOVA, ANCOVA, unbalanced designs and diagnostics)
- discussions of what a client should be told about their study and how, including flaws, consequences and possible remedies

 three or four analyses by the students of non-standard data sets followed by a non-technical report to the 'client' summarizing the results.

Twenty-five percent of the total mark for the course is for effective student participation in class and in the consulting sessions.

One comment heard from students at the end of the course is that they wish they could get more consulting experience with real clients. The department did at one point have a non-credit course in which students could work on projects with the consultants in the consulting unit; however, very few students ever registered for this course. If possible, a second consulting course such as that available at UBC would be valuable if the UW Master's program were longer than its current three to four semesters. A few graduate students do get more consulting experience because they are chosen to be research assistants in the consulting unit working in the drop-in center.

The next speaker, Heather Thiessen Philbrook, took the consulting course just described while at Waterloo, and was a consulting research assistant for two semesters. She was asked for this session to comment on the value of that course in preparing her for her first position as a consulting statistician in the Kidney Clinical Research Unit at the London Health Science Centre. Her job involves developing statistical analysis plans, completing analyses, communicating statistical concepts to non-statisticians and teaching and explaining statistical concepts to clients. She outlined the strengths and weaknesses of the course vis-à-vis the tools needed in her job, dividing her comments into four sections: planning, analysis, communication, and teaching.

Heather's assessment was:

Planning

Strengths

- excellent instruction and practical experience in obtaining required information from the client
- · focus on understanding primary ques-

CONSULTANT'S FORUM

tion of interest

 emphasis on learning background information and avoiding "errors of the third kind"

Weaknesses

 no instruction on how to develop or evaluate analysis plans

Analysis

Strengths

- exposure to "non-textbook" problems
- examples of common analyses in the real world that are not usually covered in statistics courses
- data analysis assignments Weaknesses
- little exposure to software packages
- no strategy on how to tackle unfamiliar problems
- no discussion of data management or database design

Communication

Strengths

- emphasis on how to communicate statistical concepts to non-statisticians
- discussion of communication strategies, focusing on asking good questions
- textbook readings, oral presentation, class discussions, written assignments
- · practice sessions with clients.

Teaching

Strengths

- observing consulting sessions
- discussing aspects of teaching clients statistical concepts emphasizing the avoidance of statistical jargon and explaining concepts in different ways
- considering different learning styles Weaknesses
- no training in literature searches
- no comparative discussion of software packages.

Jamie Myles' presentation discussed consulting skills needed in the pharmaceutical industry. He noted that the probability of a statistician being involved in drug studies increases as regulatory requirements increase and that, to be involved in drug studies, statisticians must add value.

Some of the duties of a clinical statistician are:

- providing input to research design
- interpreting data

- writing reports
- providing on-going support
- providing input to drug development planning
- interacting with regulators.

Skills that pharmaceutical employers look for when hiring are:

- technical knowledge
- report writing
- communication
- influence
- team working
- leadership
- project / time management

Pharmaceuticals are looking for statisticians with technical knowledge at least at the Master's level, although some may prefer a Ph.D. Understanding of various, mostly standard, analytic methods is essential, along with the ability to learn new approaches. A Ph.D. would be expected to understand and use more complex statistical tools. Familiarity with clinical trials and design is a definite asset, as is the knowledge of the statistical package SAS, some sample size software, packages for graphical displays and Microsoft Office.

Written communication, done through e-mails, analysis plans, protocols and study reports, is very important. Written work must be in clear coherent sentences. Often prospective consultants are asked for an example of something they have written. Verbal communication is also vital and will be assessed in the interview process using directed questions or even a formal presentation.

In order to be an excellent communicator, the statistician must have:

- listening skills
- presentation skills
- the ability to adapt to the audience
- the ability to speak their language.

The pharmaceutical industry will look for statisticians who will speak up, present their ideas clearly and influence the outcome.

The prospective statistician must also have the ability to work as a team member. Desirable qualities of team worker include:

- respecting others
- being able to collaborate
- willingness to speak up
- having some conflict management skills.

While not everyone is expected to be a leader, having the skills associated with leadership is an asset. The skills include:

- having vision and the ability to communicate it
- setting technical direction
- motivating others.

The abilities needed for being a team worker or a leader will be assessed in interviews with behavioral questions.

One final skill that will be looked for is the ability to manage a large project, as would be expected of a Ph.D. Qualities needed for this are:

- good organizational skills
- ability to manage competing priorities
- ability to collaborate
- getting results without authority.

The ensuing discussion included the following remarks.

Brian Allen, University of Guelph:

The first step for the statistician in a consulting session is to let the client talk and then to ask good questions. Teaching students to ask good questions is not easy. The consultant also has to know how to handle the situation when the client thinks that he knows how to analyze the data. Another issue in consulting that has to be considered is how deep the consultant gets into the statistical analysis.

David Binder. Statistics Canada:

The statistical community should be involved in consulting not only for publication purposes but also to educate and help non-statistical researchers. Communication and listening skills are both hard to define and to develop.

Damon Mayes, Regional Project Manager, Office for Health Innovation, Edmonton:

Damon will in the future be writing an article for Liaison that will discuss how statistics and statistical thinking have made an impact on senior-level decision making.

CONSULTANT'S FORUM

Additionally, he will share his views on the statistical profession in Canada and what he thinks is needed to enhance our image and impact on society.

Tim Ramsay, University of Ottawa:

In consulting courses we attempt to 'teach' our students how to communicate effectively with non-statistical researchers - first by actively listening to understand the practical problem, then collaboratively rephrasing the problem in statistical terms, and finally reporting the results in non-statistical language 'that my grandmother could understand'. However, a great failing of statistical education is that graduate-level statistics students often have little or no experience in applying statistics to real-world problems that are not already phrased in statistical termi-

nology. Most of the data they deal with in their courses is 'clean', while real life data rarely actually fulfill the assumptions underlying any parametric model. Our graduates should be taught to question how departures from the model assumptions affect interpretation of the fitted model. Our future consultants should not be confused upon encountering messy data. Instead they should be suspicious when they encounter data that is not messy!

Brief Biography of the Author

Jeanette O'Hara Hines is an associate professor in the Department of Statistics and Actuarial Science at the University of Waterloo. She has been involved in statistical consulting for most of her career, currently directing the statistical consulting unit and teaching the graduate consulting course. She is a regional representative on the Board of Directors for each the SSC and TIES societies. She is also on the SSC's accreditation committee. Her major area of research focuses on the practical needs of researchers in the biological sciences, who frequently pose challenges with new ways of gathering data, or with new objectives. She has published in journals such as the American Naturalist. Biometrics. the Canadian Journal of Statistics, Environmetrics, the Journal of Agricultural, Biological and Environmental Statistics, the Journal of the American Statistical Association and Statistics in Medicine.

STUDENTS' CORNER

Statistics Honours Students at Laval held La Journée de la statistique 2006

Thierry Duchesne Laval University

The 19th edition of the Journée de la statistique took place on March 31st at the "Hôtel Classique" in Québec City. Three talks had been scheduled for this meeting, organized annually by the CASUL. This association of Statistics Honors students at Laval is currently under the presidency of Ms Roxanne Brousseau. An audience of approximately fifty heard Mr Michel Fluet, Vice-President for Business Development at the renowned private research organization SOM, who described the role of a statistical consultant in opin-



Joseph Nader, Forest Engineering Research Institute of Canada

ion polling. Professor Louis-Paul Rivest, Laval University, then gave an overview of the issues surrounding the professional accreditation of Canadian statisticians. Finally, Mr Joseph Nader, a statistician at the Forest Engineering Research Institute of Canada, described some of the challenges associated with the use of statistical methods in this field. A "get together" at the "Pointe des Amériques" restaurant concluded the event.

UBC Student Wins a Graduate Teaching Award

Nancy Heckman

Mike Marin (MSc, Statistics, University of British Columbia, 2005) has received a UBC Graduate Teaching Award in recognition of his work as a teaching assistant and a lecturer, and for his teaching-related outreach activities. These awards, given

by the President's Office, are very prestigious -- only twelve are given at UBC each year.

PHOTOS OF YESTERYEAR



Good Old Days at McGill: (From Left to Right) Christian Léger, A.M. Mathai, George Styan, Harold Ruben and Tarmo Pukkila: November 1982.

Editor's Note: Pictures of interest to members are invited from readers of **SSC Liaison** for this section. The Editor reserves the right of choice.

NEWS

Ontario

Carleton University

A.K.Md.Ehsanes Saleh, Distinguished Research Professor & Professor Emeritus at Carleton University, Ottawa, Canada, was awarded a Gold Medal of the Islamic Countries Society of Statistical Sciences (ICSOSS) during December 19-22, 2005. for his landmark contribution to a nonparametric decision theoretic approach to Stein-type statistics, and significant world-wide impact of the the co-authored book, An Introduction to Probability and Statistics (Pub: Wiley). This is the second Gold Medal awarded to Professor Saleh by the ICSOSS. The first was awarded to him for his outstanding research in Statistics in the organization of Islamic countries conference on August 27, 1999. Notably, Professor Saleh received an Honorary member award at last year's SSC annual meeting.

Fields Institute

On November 8 and 9, 2005, **Brad Efron**, Max H. Stein Professor and Professor of Statistics and of Health Research and Policy, Department of Statistics, Stanford University gave a pair of inspired and inspiring lectures as part of the Distinguished Lecture Series in Statistics entitled Fifty Years Of Empirical Bayes and Correlation And Large-Scale Simultaneous

Significance Testing. "In the first lecture, Efron described the field of statistics as the most successful of the information sciences, and went on to illustrate this in the context of a number of applied problems that he has worked on during his career. In the process he gave a very accessible introduction to both Bayesian and frequentist approaches to assessing information." In the second lecture, Efron showed "how empirical Bayes methods are very well adapted to data sets in which there are a large number of measurements on related entities." Of particular consequence is the recent technical revolution in biology and medicine which "has led to massive parallel data sets; two examples are microarrays for measuring expression of levels of thousands of genes and fMRI experiments that measure the activation of thousands of voxels in the brain."

Excerpted from the article, Efron: Statistics Lectures in **Fields Notes** (2006) v6:2 by Nancy Reid, University of Toronto

University of Windsor

Nancy Reid of the University of Toronto delivered a public lecture at the University of Windsor on March 30, 2006, as part of the faculty of Science seminar series on "Making sense of numbers: statistics, science and society".

Sudhir Paul of the University of Windsor was appointed University Professor with effect from July 1, 2005, the University's highest award in recognition of "distinguished achievements in teaching and wide national and /or international reputation for scholarship or creative or professional accomplishment."

Contributed by Sudhir Paul

United States of America

David Brillinger, Professor of Statistics, University of California at Berkeley, has been elected a Foreign member of the Norwegian Academy of Science and Arts, and a Foreign Member of the Brazilian Academy of Science in 2006. He wishes his Canadian friends to know "how lucky I have been".

Correction

In the previous issue of **SSC Liaison** (v. 20 n.1), it was wrongly reported that Yogendra Chaubey is the first statistician to chair the department of Mathematics and Statistics at Concordia University. Actually, he is the second statistician to chair this department. The editor regrets the error.

OBITUARIES

Gerrit DeBoer (1942-2006)

Memorial Tribute to Dr. Gerrit DeBoer, Senior Biostatistician, Clinical Trials and Epidemiology, Toronto-Sunnybrook Regional Cancer Centre, Sunnybrook and Women's, University of Toronto.

by Judy-Anne Chapman, Ph.D., P.Stat., Senior Biostatistician, National Cancer Institute of Canada Clinical Trials Group

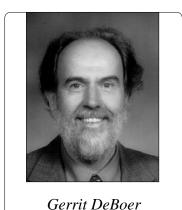
Gerrit will be fondly remembered by many Biostatisticians, especially those in the Toronto area and the Society for Clinical Trials. He passed away Tuesday, December 20, 2005 at the age of 63, after a long battle with soft tissue sarcoma.

Gerrit obtained a B.Sc. (1965) in Honours Physics and Mathematics from the University of Western Ontario, M.Sc. (1967) and Ph.D. (1970) in the Department of Medical Biophysics at the University of Toronto, with Supervisor Dr. Harold E. Johns. His Masters thesis was entitled "The UV Photochemistry of Ordered Poly U" and Ph.D. thesis, "Studies on the Photohydrates of Cytosine and its Derivatives". He did a postdoctoral Fellowship in the Department of Radiological Sciences, the Johns Hopkins University (1970-1973). Further professional development included Summer Graduate Program in Epidemiology at the University of Manitoba (1974), Graduate Summer Session of Statistics in the Health Sciences at Harvard School of Public Health (1977), and Health Care Evaluation at University of Toronto (1978).

Gerrit was one of the first transdisciplinary cancer researchers. He began as a Physicist in the Physics Division of Ontario Cancer Institute (1973-1989), before moving towards Biostatistics as Head of Biostatistics Department at the Ontario Cancer Institute (1975-1990), Division Head, Clinical Trials and Epidemiology, Toronto-Sunnybrook Regional Cancer Centre (TSRCC, 1991-1997), and Senior Biostatistician, Clinical Trials and Epidemiology, TSRCC.

Gerrit will be remembered for his steadfast support of professional Biostatistics Groups: TABA (The Applied Biostatistics Association) and its two predecessors, pharamceutical TABA (Toronto Area Biostatistics Association) and University of Toronto Clinical Biostatistics Rounds. He was a longtime member of the Society for Clinical Trials, Statistical Society of Canada, and the Canadian Society of Epidemiology and Biostatistics.

Gerrit co-authored over 100 papers along the breadth of applications from Physics to a spectrum of multidisciplinary cancer research in: prostate, breast, pediatric ma-



Gerrii Deboer

lignancies, liver, osteosarcoma, neuroblastoma, (non-) small cell lung cancer, testis cancer, hematology, melanoma, bladder, mouth, pharynx, and oesophagus, upper digestive tract, Hodgkins disease, gynaecological, and glottic cancers.

Please find below Dr. Kathy Pritchard's eulogy of Gerrit. Kathy is Head of Clinical Trials & Epidemiology TSRCC and Professor of Medicine, University of Toronto.

I knew Gerrit professionally for more than three decades. He was a Clinical Biostatistics statesman who quietly and effectively advocated for solid Biostatistics practice. He succinctly cut to the centre of a problem, quietly and firmly stating the necessary action(s), and stuck with them until fruition. He was a strong moral supporter of colleagues. It was wonderful to meet Gerrit and chat following an Elora Festival service. He truly enjoyed the up-

lifting strains of music, and I was amazed at the atttendance he planned at Festival services and performances, although he was not local.

Salomon Minkin, Division Epidemiology and Statistics, Ontario Cancer Institute (OCI), remarks, "I had the opportunity to interact with Gerrit in the late 80's when I joined the OCI and Gerrit was directing the Biostatistics Department at Princess Margaret Hospital (PMH). Gerrit was a man of great integrity and commitment who lead by example. He embodied the best values of PMH, where everyone knew and respected each other, striving and achieving excellence in their effort towards cancer control. Gerrit will be sorely missed."

Zoltan Harsanyi, Purdue Pharma, says "I remember Gerrit as one of the regular attendees of the TABA meetings that I was involved with over many years. He will be greatly missed by many."

Gerrit was a devoted husband to Annette, proud father of Christine and her husband Rich, Robert and his wife Regan, Michele and her husband Esteban and loving grandfather to 5 grandchildren. He regularly opened his home to all, and will be remembered for his great celebrations of Christmas. It was fitting that he went home in time for the ultimate 2005 celebration!

A Tribute to Dr. Gerrit DeBoer

by Dr. Kathy Pritchard, Head of Clinical Trials & Epidemiology, Toronto-Sunnybrook Regional Cancer Centre and Professor of Medicine, University of Toronto.

I was very honoured when Annette asked me last week to say a few words today about Gerrit.

I've known Gerrit from our work together for more than 25 years, but we had common roots and interests that go back even further. We both spent some of our formative years in the Ottawa Valley and also shared interests in music and family that made us friends as well as colleagues.



I don't actually remember exactly how much more than 25 years I've known Gerrit, but we were working on our first trial together in 1978 and published our first paper together in 1981. We've been writing grants and papers together ever since – our last successful grant together came through just a year ago, and we have several papers together still underway or under review.

As many of you know, Gerrit began his career as a physicist, completing his Master's and PhD with the famous Canadian Physicist Dr. Harold Johns, and completing three additional years of postdoctoral training in Physics at Johns Hopkins.

Very early in his career, however, Gerrit managed to transform himself – as only a physicist can do – into a biostatistician – and within a very few years – became – in 1975 - the Head of the Biostatistics Department at the Princess Margaret Hospital and the Ontario Cancer Institute. Gerrit served there as Head for 15 years until Dr. Derek Jenkin recruited him to Toronto Sunnybrook Regional Cancer Centre at Sunnybrook Hospital as Head of Clinical Trials and Epidemiology in 1991. Gerrit served in that capacity and as Senior Biostatistician until the time of his recent illness.

Gerrit was a "consummate professional". He was one of the most reliable and conscientious individuals I have ever had the pleasure to work with. If Gerrit said it was so – it was – if he didn't know the answer to a complex statistical problem, he would think it over, research it, and come back with a suitable solution. There wasn't an ounce of "baloney" in him. He always "told it like it was".

Over the years, he spent many hours with each of us, answering our often naïve statistical questions, analyzing our sometimes muddled data and patiently explaining to us what we could – and couldn't - conclude from our study results! He never let us go wrong!

Gerrit was an author of over 100 scientific publications. He published papers with – of course – his PhD supervisor Dr. Harold Johns, but also many other

Canadian oncology notables including Drs. Bob Bruce, Dan Bergsagel, Ray Bush, Jim Till, Victor Ling, and many, many others. Gerrit was admired and respected by these many colleagues for his thoughtful approach and careful attention to detail, for his patience as a teacher to all of us, and for his ongoing commitment and dedication to the advancement of treatment for cancer patients.

At work, Gerrit was a quiet and serious fellow – but it was easy enough to draw him out about his children and their many accomplishments. He always had their photos and art work in his office and could be induced to tell us - although in his own low key way – some of their many scholastic and artistic accomplishments.

But when it came to his grandchildren – well you didn't have to draw him out at all – he came speeding right down the hall to tell the latest. There was no holding him back!

Sadly, I came to know Annette mainly during Gerrit's recent illness. I quickly realized however, how much he relied and depended on her for advice and support in every aspect of his life.

I know that in spite of his many professional accomplishments, Gerrit was proudest of his wife and family.

My best memories of Gerrit over all the years were of Skit Nights where he would bring his guitar and lead the group skit. I can picture him now - looking like someone who stepped out of the musical "Hair" - with his beard, a bandana tied around his head, a flowered shirt, jeans and a fringed vest - leading the Division in a clinical trials song to the tune of "Where Have all the Flowers Gone"?! Somehow I had the notion that Gerrit had been seen in that outfit before? It looked so comfortable on him!

So, Gerrit the devoted family man; Gerrit the always dependable colleague; Gerrit the friend. We will all miss you very much, but we will look back with pride, pleasure and fondness on our time together.

Howard Borden Newcombe (1914-2006)

Howard Borden Newcombe, a long time member of the Statistical Society of Canada passed away February 14, 2005. He was born on 19 Sept 1914 at Kentville, NS. After studying at Acadia and McGill (Ph.D., 1939) and wartime service in the Royal Navy, he worked with M. Demerc at Cold Spring Harbor Laboratory, NY. In 1947 he moved to the Chalk River Laboratory of ATOMIC ENERGY OF CANADA LTD. In 1949 he provided direct proof for the occurrence of spontaneous, undirected mutations in bacteria. This work contributed greatly to the subsequent explosive development of molecular genetics.

In 1957 he turned his attention to vital statistics and health records for analytical studies in demographic genetics and was head of the Population Research Branch at AECL until retirement in 1979, where he pioneered computer-assisted "record linkage" techniques in Epidemiology. He was a founder of the Genetics Society of Canada and in 1963 was elected a fellow of the Royal Society of Canada.

In Memoriam to Amit Bose

by Gillian S. Murray, Coordinator Laboratory for Research in Statistics and Probability, Carleton University

Amitava (Amit) Bose, Associate Professor, School of Mathematics and Statistics, Carleton University, died suddenly at his home on January 22, 2006 at the age of 59. He is survived by his wife Ghislaine Mabile and sons Alexis and Adrian.

An alumnus and faculty member of the School of Mathematics and Statistics and a long-time member of the Laboratory for Research in Statistics and Probability, Amit Bose was a member of the Carleton family for more than 29 years. He was appointed to the Department of Mathematics at Carleton University in 1977 (as an Instructor), after receiving a Ph.D. from Carleton under the supervision of Dr. Don Dawson. He was promoted to Associate Professor in 1987. He was on sabbatical at the time of his death.

OBITUARIES

Amit was a dedicated teacher, active researcher and enthusiastic member of committees. He participated in a wide range of School committees including Hiring, Planning, and Program Committees. He was also a long-time member of the Undergraduate Studies Committee of the School and served several times as a graduate committee representative to the Joint Ottawa-Carleton Institute of Mathematics and Statistics. He also served several times as a representative of the School on CUASA Council.

Amit had a love of mathematics and great enthusiasm for his research in stochastic modelling and probability theory. He began his graduate work at McGill University where he received his M.Sc. with a thesis on "Quantum Chains" in 1968. He then came to Carleton University and received his Ph.D. in 1977. His Ph.D. thesis "Brownian Measure Processes" obtained analytical properties of a class of diffusions processes that had been developed by William Feller and Henry McKean Jr. Amit was exceptionally broad in his interests and knowledge and was attracted to challenging and difficult problems. He developed his research activity in a number of directions and did innovative work on age-structured population models, weak convergence and superprocesses. In recent years he became interested in



Amitava Bose

stochastic modelling in broadband communications. He developed international research collaborations with Doug Blount of Arizona State University and Ingemar Kaj of Uppsala University in Sweden, both of whom spent extended periods at Carleton working with Amit. In the fall of 2004, he participated in the "Queu-

ing Theory and Teletraffic Theory" fall semester at the Mittag-Loeffler Institute, Sweden. Recently he was an organizer of the 2005 Carleton Applied Probability Day, sponsored by the Fields Institute and he was also a co-organizer of the 2006 Carleton Applied Probability Workshop, sponsored by the Fields Institute. His research was supported by NSERC funding for over 25 years and he was also involved in Mathematics of Information Technology and Complex Systems (MITACS). He developed considerable experience interacting with industry and was the PI of several research projects supported by Alcatel. In recent years, Dr. Bose supervised or was supervising several Master's students, two doctoral candidates and three postdoctoral fellows.

Amit Bose was a friend and colleague who contributed energy and dedication to the School of Mathematics and Statistics, which came to rely upon his input at all levels. Amit will be sorely missed by his colleagues at Carleton.

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UNIVERSITY OF OTTAWA Department of Mathematics and Statistics

The Department of Mathematics and Statistics of the University of Ottawa is seeking to nominate candidates for an NSERC University Faculty Award in the Fall 2006 competition. Consequently, only candidates meeting the criteria for this program will be considered. Among these criteria are: Being a Canadian citizen or a permanent resident of Canada, as of November 1, 2006; being a woman or Aboriginal person who holds a doctorate in one of the fields of research that NSERC supports; not presently being in a tenured or tenure-track position in a Canadian university, nor previously having been in such a position. A precise program description is given at NSERC's web site http://www.nserc.gc.ca/sf_e.asp?nav=sfnav&lbi=c7

The successful nominees will assume a tenure-track position starting July 1, 2007 with a reduced teaching load during the duration of the award (at least 3 years). Applications at all levels and in all areas of mathematics and statistics are invited. The salary and rank will be commensurate with qualifications and experience.

Applicants should send a curriculum vitae, a research plan (preferably a preliminary version of NSERC form 101), a teaching statement and arrange for three confidential letters of recommendation, with one addressing teaching, to be sent to Michel Racine, Interim Chairman, Department of Mathematics and Statistics, University of Ottawa, Ottawa, ON Canada, K1N 6N5 by August 1, 2006. Applicants are also encouraged to include up to three copies of their most significant publications. Information about the department can be found at http://www.mathstat.uottawa.ca/

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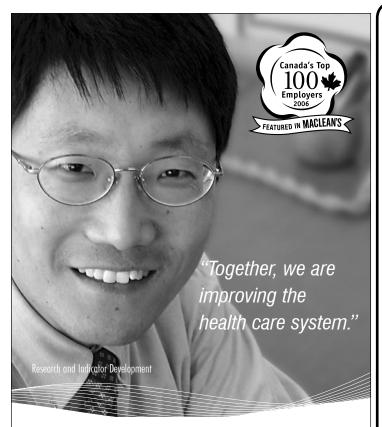
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HEAD, Department of Statistics, University of Manitoba

Applications or nominations are invited for the position of Head of the Department of Statistics in the Faculty of Science at the University of Manitoba. The appointment will be at the rank of Professor or Associate Professor, and will begin on July 1, 2007 (or January 1, 2007 or on a mutually agreed date). The Department of Statistics is one of the oldest and largest in Canada. It consists of 15 full-time academic members, with research expertise in diverse areas of Statistics and Probability (www.umanitoba.ca/statistics).

The successful candidate must have a Ph.D. in Statistics or a cognate discipline. Strong academic leadership experience in research and teaching at the undergraduate and graduate levels is preferred. The successful candidate will be expected to stimulate and promote excellence in education, research and service to the community. He or she will also be expected to develop the vision and strategic plan for the Department, and to effectively communicate the vision throughout the University and to the external community.

Nominations or applications, including a CV, names of three referees and a brief statement of the candidate's views on the future of research and teaching in Statistics and Probability in an academic department, should be sent to:

Dr. Mark Whitmore, Dean, Faculty of Science, University of Manitoba, 250 Machray Hall, Winnipeg, Manitoba, Canada, R3T 2N2. Phone: (204) 474-9348 mark whitmore@umanitoba.ca.

Please refer to Position #AP631.

Review of applications will begin on June 15, 2006 and continue until the position is filled.

The University of Manitoba encourages applications from qualified women and men, including members of visible minorities, Aboriginal peoples and persons with disabilities. All qualified candidates are encouraged to apply; however, Canadians and permanent residents will be given priority. Application materials, including letters of reference will be handled in accordance with the *Freedom of Information and Protection of Privacy Act* (Manitoba).

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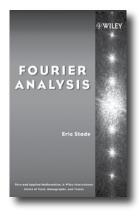
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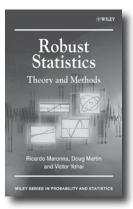
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