



Welcome to the first issue of the new electronic-only version of Liaison!

Expect to see the same content that you’ve come to love and some new additions in a more regular and flexible format. Liaison is ramping up to become a monthly publication. Keep an eye out for issue #2 in August.

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https://twitter.com/SSC_stat

Photos

Congratulations from the SSC

The mission of the Statistical Society of Canada is to promote the development of statistical methodology and encourage the highest possible standards for statistical education and practice in Canada. It carries out this mission through publications, education and advocacy. An important role of the Society is to recognize outstanding achievements in all aspects of its mission. To this end, the Society annually recognizes outstanding achievements of its colleagues through the presentation of awards. It is my very great pleasure to announce this year’s winners of four of the Statistical Society of Canada’s 2017 awards.

Gold Medal: Richard J. Cook (University of Waterloo)

SSC Distinguished Service Award: Larry Weldon (Liaison)

Award for Impact of Applied and Collaborative Work: Carl Schwarz (Simon Fraser University)

Honorary Member: David R. Bellhouse (Western University)

A highlight of the annual meeting, held this year at the University of Manitoba in Winnipeg, is the presentation of these awards at the **banquet June 13**. Each award winner is featured in this issue, with a description of the award and the award citation that was prepared for the winner. These award winners are being recognized for exceptional achievements in statistics, of which we can all be justifiably proud.



On behalf of the Statistical Society of Canada, its Board of Directors and the entire membership, I offer my congratulations to each of the winners. Based on the exceptional achievements of these award winners, the future of statistics in Canada is in good hands!

Jack Gambino, PhD

President, Statistical Society of Canada

Distinguished Service Award 2017; K. Laurence Weldon

Professor K. Laurence (Larry) Weldon is the recipient of the 2017 Distinguished Service Award from the Statistical Society of Canada (SSC). This award honours an individual who has played an important and substantial role in fostering the growth and success of the Canadian statistical sciences community through leadership in the SSC.



Larry studied Mathematics and Physics at the University of Toronto, discovering and specializing in Statistics in his upper division courses; he graduated with both his BSc (1965) and his Masters degree (1966) from the University of Toronto. After a summer's work at Dupont Research Center in Kingston he headed to Stanford University to study applied probability models under Rupert Miller, graduating with a PhD in Statistics in 1969.

Larry's first academic job on his return to Canada was a joint appointment between York University (Administrative Studies) and the Committee of Presidents of Universities of Ontario. His desire to be involved in medical statistics prompted a move to the School of Hygiene at University of Toronto and then to Dalhousie University, where he was jointly appointed to the Preventive Medicine and the Mathematics departments. At both Toronto and Dalhousie Larry was very involved in statistical consulting services within the university. In 1978 Larry headed west again, accepting a position as Associate Professor at Simon Fraser University, where he taught until his retirement in 2007. While there, he developed the SFU consulting service, which he coordinated for 15 years. Just as he was retiring from SFU, Charmaine Dean convinced him to take over editorship of *Liaison*. That editorship has lasted ten years.

The first decades of Larry's career were concentrated on explaining statistical techniques to non-statisticians through teaching and consulting. His experiences with statistical consulting stimulated an interest in the reform of statistical education, and from 1986 onwards, spurred on by his attendance at 2nd International Conference for Teaching Statistics (ICOTS) in Victoria, BC, his career focused on this reform. He was one of the first to offer a statistics course online, involving the peer-support model in statistics education. Larry has been an indefatigable proponent of the idea that teachers of statistics need a

hands-on knowledge of applied statistics in order to teach it properly. In recent years Larry has encouraged experiential learning as a more authentic approach to statistics training. The CIDA-SFU Eastern Indonesia University Development Project allowed him to share this teaching approach with Indonesian statistical faculty through short courses and mentoring of teachers of statistics (1988-1998). He took every opportunity to contribute talks to the conferences of the ASA, SSC, OZCOTS, ICOTS and IASE (International Association for Statistics Education) suggesting changes to undergraduate teaching. Some of these suggestions have also appeared as articles in *Liaison* as well as in the Editor's messages.

Larry has continued to promote educational reform of the discipline after his retirement. He has given talks at conferences and seminars with varying aspects of his work in simulation and graphics, and the use of these techniques in statistics education. The details of these contributions are recorded [here](#).

Larry's involvement with the SSC began with his election to the Board of Directors as an Atlantic Region representative of the Canadian Statistical Society (CSS) in 1975-76. The CSS became the Statistical Society of Canada (SSC) in the following year. He participated in SSC meetings across the country in subsequent years. Larry was Program Chair for the SSC meeting in Winnipeg in 1985. Although he retired from SFU in 2007, the ten years as Editor of *Liaison* have given him an opportunity to remain in the consciousness of Canadian statisticians. As an invited participant to SSC Board meetings, he has been involved in the strategic planning of the SSC.

There have been significant changes made to *Liaison* in both layout and content since 2008, making the newsletter one of the best in the international statistical community. Larry credits his wife Jill for excellent support in this, as Jill has done the layout for most of Larry's tenure as Editor. Larry is now involved in the reincarnation of *Liaison* to a web-based version. Under his leadership, *Liaison* has become a world class newsletter.

The citation for the award reads:

"To K. Laurence Weldon, for exemplary service as Editor of the SSC newsletter Liaison; for his leadership over a decade in enhancing Liaison to a world class standard; for his endless attention to all aspects of publishing the newsletter; for his early and ongoing efforts to promote reform in statistical education; and for his effective service as a Canadian representative to the international statistical education community."

Thanks to Edward Chen, who was primarily responsible for producing this material

Honorary Member 2017; David R. Bellhouse

David R. Bellhouse, Professor Emeritus of Statistics at Western University, London, Ontario, has been named an Honorary Member of the Statistical Society of Canada. This award is intended to honor an individual who has made exceptional contributions to the development of the statistical sciences in Canada and whose work has had a major impact in this country.



David was born in Winnipeg, Manitoba, on July 19, 1948. Part of his youth was spent in Saskatoon, Saskatchewan, where his father worked for nine years. He nurtured two of his talents there: mathematics was his best subject at school and he learned to play the French horn. The family returned to Winnipeg in 1964 and while David was in Grade 12, he was persuaded by his teachers to enter the Manitoba Mathematics Contest. As he placed in the top 25, his father encouraged him to take actuarial science at the University of Manitoba. He followed the advice.

David completed a BA (Honors) in actuarial mathematics in 1970. In the process, however, he discovered that he had little interest in the corporate world. Having taken several courses in statistics and history as an undergraduate, he considered switching to one of these two fields and finally opted for statistics as job prospects seemed brighter for statisticians than for historians. During his MA studies at the University of Manitoba, completed in 1972, he was greatly influenced and helped by Jon Rao, who was then on faculty there. Their collaboration continued during David's doctoral studies at Waterloo (PhD, 1975) and for many years thereafter. Much of David's work in survey sampling profited from this continued contact.

After graduation, David took a staff position in the Social Science Computing Laboratory at the University of Western Ontario. He was then hired as an Assistant Professor in the Department of Mathematics in 1977 and designed the statistics curriculum when the Department of Statistical and Actuarial Sciences was formed in 1980. He became an Associate Professor in 1982 and was promoted to Full Professor in 1987. He chaired the department from 1992 to 1999 and retired on July 1, 2016.

During his career, David published extensively and supervised 45 MSc students, four PhD students, and one postdoctoral fellow. His technical contributions and broad expertise helped to improve numerous surveys run in Canada and the US. He was, among others, a member of Statistics Canada's Advisory Committee on Statistical Methods from 1998 to 2005 and served on the

Editorial Board of five different journals, including the *Journal of the American Statistical Association*, *Survey Methodology* and *The Canadian Journal of Statistics*. In addition to collaborative research in fields such as archeology, biology, geography, law, and medicine, he did a lot of work around the lotteries.

Early in the 1980s, David's passion for history led him to investigate the origin of ideas in probability and statistics. His work in this area has been exceptionally successful and widely acclaimed. His biographies of Thomas Bayes (published with discussion in *Statistical Science*) and Abraham De Moivre (in book form, 2011), enriched by many original archival findings, are particularly noteworthy.

Over the years, David showed deep and long-standing commitment towards the statistical profession. He held several positions within the SSC, most notably as Secretary (1988-90), President of the Survey Methods Section (1992-93), and President (1998-99). In the latter capacity, he played a leading role in the development of the Society's first strategic plan and initiated the move to professional accreditation of statisticians. He also served on NSERC's Statistical Sciences Grant Selection Committee, which he chaired for one year.

David's outstanding professional achievements earned him a University of Western Ontario Gold Medal for Excellence in Teaching (1985), an Elected Membership in the International Statistical Institute (1987), the title of Fellow of the American Statistical Association (1989), the SSC Service Award (2003), and the 2017 University of Manitoba Faculty of Science Alumni Award.

David's wife Louise (née Budnick) is a violinist. He met her when he played for the Winnipeg Youth Orchestra. They will be celebrating their 45th wedding anniversary this summer. They have two daughters. Erika has a PhD in engineering and works in steel research at ArcelorMittal (Dofasco) in Hamilton, Ontario. Laura is a psychotherapist counselling students at London's Fanshawe College as well as young children in a private practice.

In his retirement, David continues his historical research in statistics, financed in part by consulting work, mostly related to law cases. He recently returned to his actuarial roots and has a new book coming out this summer on the development of actuarial science in 18th century England. He also plays French horn in two concert bands and a woodwind quintet.

The citation for the award reads:

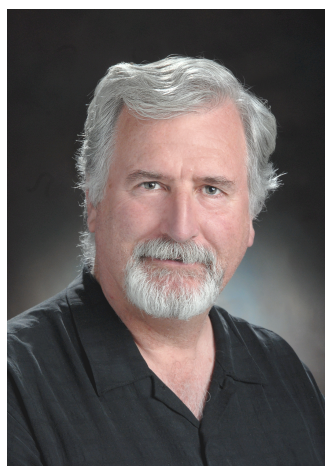
"To David R. Bellhouse, for his many contributions to survey sampling and to the history of probability and statistics; for his excellence in training and mentoring; for his academic leadership; and for his dedication to the profession."

Thanks to Christian Genest, who was primarily responsible for producing this material.

SSC Award for Impact of Applied and Collaborative Work 2017; Carl Schwarz

The 2017 recipient of the Statistical Society of Canada Award for Impact of Applied and Collaborative Work is Professor Carl Schwarz, Department of Statistics and Actuarial Science, Simon Fraser University. The award recognizes outstanding contributions by a member of the SSC in collaborative research and applied work, the importance of which derives primarily from its relatively recent impact on a subject area outside of the statistical sciences, on an area of application, or on an organization.

Born and raised in Winnipeg, Carl has a long association with the University of Manitoba. The relationship dates back to a six-week, summer residency program in French immersion at the end of Grade 12 where he met his future wife, Lois. Carl completed both BSc and MSc degrees in computing science at the University of Manitoba before refocusing on statistics in a Masters degree at the University of Waterloo. Carl then spent three years in Toronto working as a statistician for the Research Division of Ontario Hydro. He then returned to Winnipeg where he completed his PhD in ecological statistics at the University of Manitoba under the supervision of Dr. Neil Arnason. Carl went on to accept a faculty position at the University of Manitoba where he established his reputation as a leading researcher in ecological statistics.



Shortly after spending a sabbatical leave at Fisheries and Oceans Canada's Pacific Biological Station in Nanaimo, BC, Carl joined the burgeoning statistics group in Simon Fraser University's Department of Mathematics and Statistics in 1994. He soon played a pivotal role as Chair of the newly created Statistics and Actuarial Science Department for three years, starting just one year after its creation in 2000. He has also provided valuable service over many years to Simon Fraser University's Faculty Association, and was instrumental in the creation of the Statistical Society of Canada's professional accreditation program. Carl and Lois took their three children, Matthew, Marianne, and David on adventurous sabbaticals. In Carl's words, "We (and our family) really enjoyed our study leaves in New Zealand at the University of Auckland and in Australia at James Cook University in Townsville. While home is always nice, the opportunity to stretch your and your family's horizons is always wonderful. Both of us enjoyed the welcoming attitude of the host university's faculty and families. Our family enjoyed the natural beauty of the two countries and the native flora and fauna. These were great adventures that really brought us together -- how often do you get to sit together in sand on Hot Water beach in NZ with the warm spring water coming up against the fresh ocean waves, or camp in the Outback together under a starry night with kangaroos and wallabies wandering around your tent! We hope we can be as hospitable here for our visitors."

An avid cyclist, Carl can often be seen with his mountain bike on the steep trails up to Simon Fraser University's Burnaby Mountain campus. Carl has even cycled, in stages, almost all of the arduous BC section of the Trans Canada Trail. He also enjoys unusually adventuresome hiking. Last year, he completed a trek in Nepal whose high point gave him a view down onto the Mt. Everest base camp.

As an ecological statistician, Carl develops methods to study the demographics of wild animal populations. He collaborates with both fisheries and wildlife biologists, applying and developing methods for studying animals from chinook salmon to grizzly bears. He has also been involved in the study of the northern spotted owl. Decimated by extensive destruction of its habitat (old growth forests in the Pacific Northwest), this owl is currently on the US threatened species list and is considered endangered under BC's Wildlife Act.

Carl's main research area is the design and analysis of capture-recapture studies. These studies provide population information through the repeated capture of marked individuals. They are commonly used in wildlife research when a complete population census is not possible. They provide information about changes in population size; vital rates, including birth and death rates; animal movements in space; and the factors that affect these processes.

As a statistical consultant, Carl also works with government and industry to improve study designs and analyses in real world settings. Dedicated to helping wildlife managers and other applied researchers to improve their knowledge of statistics, he regularly teaches short courses on survey sampling techniques, experimental design, and statistical analysis for a variety of government organizations in Canada. Carl's excellence as a teacher is exemplified by his receipt of three teaching awards, including Simon Fraser University's 2012 university-wide Excellence in Teaching Award.

The citation for the award reads:

"To Carl Schwarz, for world renowned expertise in the field of ecological statistics; for work that has broadly impacted methods for monitoring and managing threatened animal populations; for founding and championing the Statistical Society of Canada's professional accreditation program; and for dedicated and exceptional teaching with a focus on real world applications of statistics."

Thanks to Laura Cowen, Rachel Altman and Simon bonner, who were primarily responsible for producing this material.

SSC Gold Medalist 2017; Dr. Richard Cook

The 2017 recipient of the Gold Medal of the Statistical Society of Canada is Professor Richard Cook. The Gold Medal is awarded to a person who has made outstanding contributions to statistics, or to probability, either to mathematical developments or in applied work. It is intended to honour current leaders in their field.

Richard Cook is Professor and Tier 1 Canada Research Chair in the Department of Statistics and Actuarial Science at the University of Waterloo. He holds a cross-appointment with the School of Public Health and Health Systems at Waterloo, and an adjunct appointment with the Faculty of Health Sciences at McMaster University.



Richard was born in Toronto in 1965 and grew up from the age of three in Dundas, Ontario. He received a BSc in Statistics from McMaster University in 1988, and MMath and PhD degrees from University of Waterloo in 1989 and 1993. During his undergraduate days and for a year before doing his PhD, Richard worked as a research assistant and then research associate in the Department of Clinical Epidemiology and Biostatistics at McMaster University, thus beginning his engagement with statistical problems in medicine and public health. His PhD thesis at Waterloo, entitled "Group Sequential Analysis of Multivariate Responses", was written under the supervision of Vern Farewell. Following his PhD, Richard joined the Department of Statistics and Actuarial Science at Waterloo, where he has since remained, aside from visiting appointments at Oxford University and University of Hong Kong.

Richard is one of the world's leading biostatisticians. His contributions to statistical theory and methodology in survival and event history analysis are highly original and widely cited. Much of this work involves methods for the analysis of incomplete data on disease processes due to truncation, various forms of censoring and intermittent observation. His 2007 book, *The Statistical Analysis of Recurrent Events*, co-authored with Jerry Lawless, is now the standard reference in its field. He has also made outstanding contributions to many other areas. His research on the efficient design and analysis of clinical trials has led to methods for sequential monitoring of multiple outcomes, the study of selection effects, and cost-benefit analyses. He has developed methodology for longitudinal data analysis that addresses incomplete data problems associated with premature loss to follow-up and missed observation times. Here, and in his work on event history analysis and multistate models, he has proposed ways to deal with difficult issues that arise when observation schemes are not independent of the processes being analyzed. These important developments are typically motivated by current scientific studies but have broader relevance for the analysis of data from registries and administrative databases.

Richard has also been a major and prolific contributor to medicine and public health, especially in the areas of cancer, cardiovascular disease, rheumatology and transfusion medicine. His collaboration with researchers in those areas has enhanced the work and scientific output of their teams. It also motivates his research on statistical methodology, which addresses issues raised in the collaborative work. Indeed, a hallmark of his statistical research is that he does not duck problems related to the complexity of the processes being studied and the difficulty of measuring all relevant factors.

Richard has also been a superlative teacher, mentor and supervisor. He has supervised over 20 PhD students since 1997, and four have won the Statistical Society of Canada's Pierre Robillard Award for best thesis. He has organized many training initiatives for graduate students through his collaborations and contacts with medical researchers; a recent example is the Biostatistics Training Initiative with the Ontario Institute for Cancer Research. He has also been an outstanding contributor to the profession, for example through his activities in organizations such as the SSC, where he has been president of the Biostatistics Section and chair of the Research Committee; as an Associate Editor for many journals; as a workshop organizer; and as a member of grant review panels. He is highly valued as a member of advisory panels and as a reviewer of biostatistics groups and has served the US National Institutes of Health and other organizations in this capacity.

Richard's contributions have been recognized previously. He has held a Tier 1 Canada Research Chair at University of Waterloo since 2005, was awarded the CRM-SSC Prize in 2007, and is a Fellow of the American Statistical Association. In November 2016 he gave the prestigious Armitage Lecture at Cambridge University, an award sponsored by the Biostatistics Unit of the Medical Research Council (UK).

The citation for the award reads:

"To Richard John Cook, in recognition of his outstanding contributions to statistical theory and methodology, particularly in the areas of event history analysis, analysis of longitudinal data, and design and analysis of clinical trials; for exceptional accomplishments in

collaborative medical research; for his outstanding record as a teacher and mentor; and for his leadership in biostatistics in Canada and abroad.”

Thanks to Jerry Lawless, who was primarily responsible for producing this material.

Tips for maximizing your learning potential at professional conferences

Last summer Eric Cai attended the 2016 Annual Meeting of the Statistical Society of Canada (SSC). He spoke on the career-advice panel at the 2016 Canadian Statistics Student Conference (CSSC) and met colleagues and professors to share ideas about statistics, statistical education and the use of social media to promote statistics to the general public. These are his tips for obtaining maximum benefit from a conference.



From observing and talking to many students at this conference, I realized that most of them did not use it effectively to maximize their learning potential. A conference like this is a great opportunity for networking, career development, and – eventually – **finding a job**, but I suspect that most statistics students do not comprehend the depth of its value, let alone how to extract it. Thus I’m writing this advice column to help anyone who attends a professional conference.

OBJECTIVES

Most statistics students want to succeed academically and **find a job after completing their education** – that job could be within or outside of academia. Thus, at any professional conference, they should have the following objectives:

1. To learn new ideas in your fields of interest
2. To meet others who share your professional interests
3. To learn soft skills from veterans in your industry for developing your career
4. To build valuable relationships in your professional network

Unfortunately, based on my anecdotal observations, many students in statistics, math and science don’t seem to grasp Objectives #3-4. These students tend to be passive in their attendance and shy in their participation. When they do try to pursue Objectives #3-4, they are often unprepared and do not take advantage of all of the learning opportunities that are available to them.

The first step in maximizing your learning potential at a professional conference is recognizing that it takes preparation and hard work. To do it well, you need to take all 4 objectives seriously and practice them frequently. Attending a professional conference is a skill, and developing this skill requires thought and effort. It involves much more than just showing up, talking at your turn, and listening at all other times. Hopefully, the rest of this article will help you to develop this skill in an intelligent way, but you must realize that there is no substitute for hard work.

BEFORE THE CONFERENCE

Before you attend your conference there are many things that you can do to prepare for the experience. This preparation is based on the stark reality that you will have limited time to meet many people and attend many events. Thus, here are some tips for helping you to spend your time wisely. The tips for formal presentations and informal networking opportunities are quite different, so I will present them separately. I will also share some tips for preparing for the logistics of attending conferences.

Formal presentations

Choose the presentations that are closest to your professional interests and goals. Because of constraints on time and space, many presentations will often be delivered simultaneously in different rooms. Thus, view the abstracts on the conference’s Web site in advance and plan which ones to attend.

Prepare questions for the presenters ahead of time. You can often get a rough understanding of the presentation topics by reading their abstracts in advance. Prioritize your questions carefully, because time will be limited, and other people will ask questions, too.

Write follow-up questions, ideas, or thoughts that you may incorporate into your own research or use as new avenues for inquiry.

Networking breaks and events

Read the Web sites, Twitter accounts and LinkedIn profiles of the speakers to learn about their backgrounds, expertise, and professional interests.

Identify the people to whom you want to speak:

- They are likely the ones who relate most to your professional objectives, but they may be just interesting people who offer valuable insights that you want to gain.
- They are likely the speakers, but they may also be fellow attendees – some conferences will post the list of attendees on their Web sites in advance.

Prepare questions to ask about their professional history that cannot be gathered from what is available online.

- For example, don’t ask them what their job title is or where they studied – these are facts that most LinkedIn users share on their profiles.

Prepare questions that ask them to elaborate on a part of their professional history that relates most to your interests.

- Focus on their strengths – what are they good at, and how did they become good at it?

Identify any goals, questions or concerns that they may have, and prepare possible solutions or answers.

- Don't underestimate your own skills and knowledge – you may know something that they want to learn.

If you have a technical question, bring any relevant reference materials – perhaps a journal article, a photocopy of a passage in a book or some plots that illustrate your ideas.

Identify any mutual acquaintances in your professional networks – prepare to exchange information and stories about what you have learned from your mutual contacts.

If you want to hold a long, substantial conversation with someone, email them ahead of time and arrange a meeting.

- Do this as soon as possible – you will be surprised by how quickly an attendee's schedule will be fully reserved with meetings, especially if they are accomplished or have many responsibilities associated with the conference.
- In your email, clearly state your purpose for requesting this meeting and identify the value for both you and them. If you think that you have some valuable knowledge that pertains to their professional interests, then emphasize this.

Prepare an elevator pitch of 30 seconds in length to talk about who you are, where you come from (i.e. what is your organizational affiliation), what your professional interests are and what you are currently working on. Practice saying this elevator pitch repeatedly until you can deliver it smoothly, comfortably, and articulately.

Some general ways to prepare for a conference in advance:

Visit the relevant rooms for your events in advance to ensure that you know where to go. If your conference will be held at a university, then there is a good chance that you will get lost in your first navigation. Don't do this on the day of your events. Be punctual.

If you are attending a conference away from your hometown and need to stay near the conference for a few days, then get maps for your conference venue and local amenities.

- Find the restaurants and grocery stores that are close to your conference venue and suitable to your diet.
- If you will stay in a hotel, then your concierge can provide useful information about local amenities to you.

Bring your notebook to take notes, and bring it everywhere you go.

Bring water with you or make sure that you know where to get drinking water nearby.

- You will likely talk a lot and need constant hydration.

Identify the locations of the nearest washrooms.

- Do not waste your time travelling long distances to look for washrooms during important events.

DURING THE CONFERENCE

Focus your energy on meeting new people during registration periods, networking breaks, lunches, dinners and receptions.

- Approach strangers with a smile, firmly shake their hands and tell them your name and your organizational affiliation.
- Ask them about their work, relevant professional interests and organizational affiliations.
- Use your elevator pitch to introduce yourself.
- Do not be shy or reserved about doing this. Far too many people waste their time at conferences because they choose to sit by themselves in these situations. It doesn't matter if you're shy or introverted – force yourself to do this.

As I wrote for the pre-conference preparation, you should identify people to whom you wanted to speak. Use your preparation and look for them.

- As soon as you meet them, tell them how you learned about them and what you enjoy about their work. This will immediately show your conscientiousness and motivate your conversant to talk with you at length.
- Use the questions that you prepared in advance. Ask the most important ones first, because you may not have the chance to ask them all.

Write notes on key ideas that you learned from formal presentations. Remember that some presentations are not meant to dive into deep details, so take just enough notes to remind yourself later of what you want to investigate further.

Write notes about every person to whom you spoke substantively and substantially.

- Even if your conversations were not interesting at the time, that person may become valuable upon further reflection in the future.
- It is awful to engage in a great conversation with someone but completely lose track of who they are or how to contact them.

Don't approach someone to converse without having some purpose or objective. Everyone's time is precious and valuable, and you need to respect it.

Be sincere about why you approach someone to strike a conversation. Don't fabricate a question just to have an excuse for talking to someone.

Don't ask a question just to show how smart you are. It wastes everybody's time. Furthermore, it highlights your selfish desire to cast a favourable impression of yourself, while others are trying to exchange substantive ideas and wisdom and learn from each other.

If other people are waiting to talk to someone, don't monopolize their time by asking too many questions.

Thank each person who shared substantial insights, ideas, or suggestions with you. Be grateful for their time.

Take the time and effort to build some positive interaction with someone before asking for their business card or contact information.

- Demonstrate your mutual interests, your respect for their time and your potential for teaching something valuable to them. Then, ask for their business card.

It is completely reasonable to have a desire to build a professional relationship with someone who shares your professional interests and has something to teach you, but do that after the conference by contacting them online.

- You just met them for the first time and held an engaging but brief conversation, so don't leap toward a professional relationship right away.
- Connect with them via LinkedIn or – if they permit by sharing a business card – via email.

Unless both of you have much to discuss, recognize that you both likely have many other people to talk to and events to attend, so don't try to hold exhaustively long conversations.

Don't ask a stranger to make any significant commitment to help you with something.

- Be grateful for their time, and allow them to gracefully transition to their next conversation or event.
- If you built a good rapport with them, then you can always continue building a professional relationship with them after the conference by email.
- Only after you have done that work should you even consider asking them for help.
- Try to identify something that you can do to add value to their work before you submit your request for help.

If you really cannot come up with a question, you can simply tell them that you really enjoyed their presentation (or whatever work that impressed you).

- Ask what motivated them to pursue that work.
- Listen to their story, and consider learning from their professional path rather than continuing to talk about the technical aspects of their work. You can likely ask good follow-up questions based on their story.

If you are at a reception, lunch, or dinner, force yourself to sit away from your existing acquaintances and meet new people.

- After sitting at one table for a while, thank your conversants for the positive acquaintance and gracefully move to new tables to meet new people. Unless seating arrangements were organized to be rigid, don't allow politeness to anchor you onto one spot for the entire event.

Poster sessions

Take the initiative to approach a poster presenter and give them a chance to talk.

- Simply shake their hand, tell them your name and ask them to tell you about their work.

If you become interested in their work, then take the time to engage in a conversation – they will surely appreciate your effort and diligence in understanding their work, instead of just passively nodding your head without any comprehension.

- Rephrase what the presenters say back to them to confirm your understanding.
- Take notes for your own reference and inspiration.
- Offer your suggestions on new directions for study or investigation.

If you sincerely disagree with them and can justify your thought or opinion, then say so – they will appreciate your honesty and may even learn something from the experience.

- However passionate you may become in your disagreement, direct your passion toward the idea, not the person. Don't make it a personal attack.

Thank the poster presenters for their time. If you really enjoyed talking to each other and think that you have more to learn from each other, then exchange your contact information.

AFTER THE CONFERENCE

Write a list of all of the people with whom you would like to stay in touch.
Look for them on LinkedIn – that is the best way to stay in touch with people as they transition between organizations.

- Write a personal message in your LinkedIn invitation to remind them of how you met. Don't use the generic introduction – take the time to write a personalized message.
- If you can't find them on LinkedIn, then email them.

Thank each person who took time to speak to you personally and taught something valuable to you.
Share any valuable ideas or suggestions regarding your mutual professional interests.
Unless you have some good reason to engage in a big discussion, keep your message brief. Aim for a tone of gratitude and positivity in forging this new connection.
If you use Twitter, consider following them and adding them to any of your Twitter lists.
Post updates on social media about what you learned and enjoyed about the conference.

- Tag people with their proper Twitter handles. Use relevant hash tags.
- You can tag people and organizations on LinkedIn, too.
- Post photos with good descriptions on Instagram.

If you don't have ongoing discussions or collaborations, then follow up with them once every 1 to 2 years to ask them about their work and update them about your progress.

Eric Cai works as a Data Science Consultant at [Environics Analytics](#). He also writes his own blog, [The Chemical Statistician](#), where he shares his passion about [statistics](#), [chemistry](#), and [math](#), as well as [career advice](#) for students and professionals. The Chemical Statistician can also be found on [YouTube](#) and [Twitter \(@chemstateric\)](#). You can learn more about Eric's work at Environics Analytics on his second [Twitter page \(@EricCaiEA\)](#).
Reference: Eric Cai's [Blog](#)
Photo by [Peter MacDonald](#)

Tips for presenting at a scientific conference

Eric Cai served as a judge for some of the student presentations at the 2016 Canadian Statistics Student Conference (CSSC). Here Eric provides detailed tips for making a good scientific conference presentation.

INTRODUCTION

The conference was both a learning opportunity and a networking opportunity for statistics students in Canada. The presentations allowed the students to share their research and course projects with their peers, and it was a chance for them to get feedback about their work and learn new ideas from other students.
Unfortunately, I found most of the presentations to be very bad – not necessarily in terms of the content, but because of the delivery. Although the students showed much earnestness and eagerness in sharing their work with others, most of them demonstrated poor competence in public speaking.
Public speaking is an important skill in knowledge-based industries, so these opportunities are valuable experiences for anybody to strengthen this skill. You can only learn it by doing it many times, making mistakes, and learning from those mistakes. Having delivered many presentations, learned from my share of mistakes, and received much praise for my seminars, I hope that the following tips will help anyone who presents at scientific conferences to improve their public-speaking skills. In fact, most of these tips apply to public speaking in general.

BEFORE THE PRESENTATION

Many of the problems from bad public speaking stem from bad preparation. Here are some tips for preparing for a presentation.
Ensure that your abstract has proper spelling and grammar. I was aghast at the abundance of blatant mistakes throughout the abstracts that were written in the program booklet. There is no excuse for these errors – they are short pieces of writing and you have plenty of time to proof-read them.

- Your future employer may search your name on Google and find your writing in a document like this, so any mistakes that you leave in such a public record will reflect on your poor diligence and inability to write in proper English for the rest of your professional life. Be ruthlessly attentive.

Put one or two key concepts on each slide, but no more.

- Your audience will be listening to you and reading the slides at the same time, and it will be very hard to pay detailed attention to both. Don't overwhelm them with too much information on a slide.



- Your slide should complement what you say, not completely substitute for it.
- Equations and formulas are especially difficult to absorb, so show only one on each slide. Only show more than one if they are directly related or comparable to each other.
- Spread the text and images with plenty of space apart so that they are easy to distinguish from each other.
- Put more than 2 concepts on a slide only if it is meant to be a list. For such slides, make sure to spend some time talking about each item on this list. This will allow the audience to absorb each item fully as you expand on it.

Write information in point form.

- Don't write paragraphs on a slide. It's too hard to absorb their content.

Use succinct phrases whenever possible.

Use an online LaTeX editor to write your mathematical expressions, formulas and equations.

- My favourite is a [free editor that is hosted by CodeCogs](#).

Use plots and diagrams whenever possible.

- Statistics, math, and science are very visual subjects and images will greatly facilitate your audience's understanding of your concepts.
- PowerPoint has many tools for drawing diagrams. Use them well.
- Label and annotate your plots properly.
- Ensure that you label your axes and include units.
- Insert legends whenever needed.
- Use large markers and thick lines to make your plots visible to everybody, especially those who will sit in the back of the room.
- Wikimedia and Flickr have many stock images that you can freely use, but make sure to check the licensing policy of each photo. Attribution is often necessary and a good thing to do.

Tables and arrays are also valuable for organizing information. Use them whenever possible.

Generally, use black text against a white background to make your writing clear to everybody, especially those who will sit in the back of the room..

- Use colours, bolding, italicization, underlining and varied font sizes to make key distinctions between adjacent text or to highlight important points.

Include a slide to highlight your online profiles, such as your web site, blog, LinkedIn profile, Twitter profile or YouTube channel.

Practice delivering your presentation.

- Mark the key junctures of your speech, and make sure that you have enough time to hit each of those junctures.

Ensure that you can finish your presentation within the allotted time. Far too many students in the 2016 CSSC did not finish delivering all of their intended material, which reflected badly on their organizational skills.

- If your practices reveal that you don't have enough time, then cut material from your presentation.
- Instead of presenting all of the details of a particular step, just state the conclusion.

Rehearse your presentation in front of a respectful but critical audience.

- If you are a university student, ask your department to organize a rehearsal session for all students who will present at the same conference.
- Offer to help to organize this rehearsal session.
- Invite professors, research staff, graduate students and undergraduate students to attend this rehearsal session. (I thank Hugh Chipman of Acadia University for suggesting this valuable tip.)

Try to frame your slides and speech into a story.

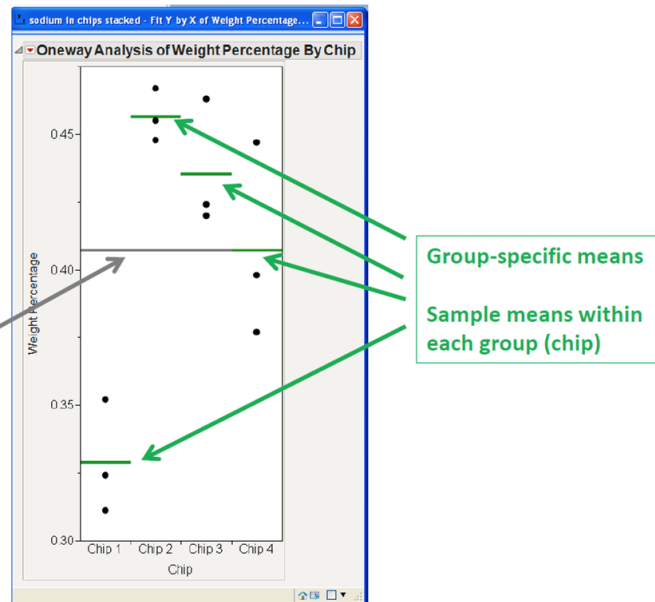
- Humans absorb stories much better than a collection of disparate facts.
- This is relatively easy to do when you present your research. A story has a beginning, a middle, and an end.
- The beginning is your initial question or objective. What motivated it? Why is it important?
- The middle is your actual work. How did you tackle your research question or objective (i.e. What was your methodology)? What obstacles did you face? How did you overcome them? What surprises did you encounter along the way?
- The end is your conclusion. What is the answer to your question? What did you learn? What is the moral of the story (i.e. how does your work impact your overall field of study?)

Many people put a slide at the beginning to provide an outline for the rest of the presentation. I don't do this for two reasons.

- Most presentations in math and science follow the same general scheme, so it doesn't add much value and wastes precious time.
- If you create a good story for your speech, then your audience will be captivated from the start and providing an outline would spoil any surprises.
- I recognize that this is an unusual opinion, and it fits my very unique style of presenting technical seminars. Thus, use an outline slide if it is really important to you.

I delivered a very technical presentation to the Vancouver SAS User Group in 2016, and I received many positive comments from the audience afterward. I discussed the use of ANOVA to assess a sampling scheme for quantifying sodium in potato chips in analytical chemistry. This is a slide from my presentation on ANOVA and sampling in analytical chemistry to the Vancouver SAS User Group in November, 2016. Note my use of colours, arrows, and an image to illustrate my concepts on this slide. Remember – slides should complement your speech, not substitute for it.

Visualize the Data



Grand Mean
Sample mean of all data

Group-specific means

Sample means within each group (chip)

DURING THE PRESENTATION

If possible, bring a video-recording device (such as your smartphone or tablet device) with you, and respectfully ask someone in the audience if they would be so kind and willing to record your presentation.

- Use something like a book to prop the device, so that your kind Samaritan doesn't need to hold the device throughout the whole presentation.
- This recording will be very useful for you to watch afterward and review your performance.

Speak from memory, and DO NOT read from a script.

- Talking to your script without looking at your audience is very impersonal and it obliterates the human connection that makes public speaking a powerful way to connect with people.
- Practice your speech ahead of time and use your slides as a guide for what to say.

Make eye contact with your audience.

Your intonation and facial expressions are your tools for connecting with your audience.

- Vary the tone of your voice. Speak loudly at important points.
- Vary the pace of your voice. Speak slowly at important points.

Pay attention all sections of your audience.

- If possible, walk laterally throughout the space in the front of the room to accentuate your attention to each part of the audience.

Use your hands and arms to gesture and emphasize any key points. They are highly undervalued tools in public speaking, and using them wisely can energize your presentation significantly. Watch my [videos](#) on [my YouTube channel](#) for some examples of how I do this. Consider demonstrating something in another software or programming language, like RStudio, SAS, JMP, Python, or MATLAB. Ask questions occasionally throughout the presentation to engage with your audience through their participation.

- Ask questions on points that deserve emphasis and require some thought.
- This strategy works best when, after you ask the question, a brief, awkward silence falls over the audience and forces them to start thinking and talking to break that awkwardness. When executed well, this is one of my best techniques for public speaking.
- Sometimes, an occasional question to force the audience to remember some basic fact near the beginning of the presentation is also helpful. This forces them to pay attention right from the beginning.

AFTER THE PRESENTATION – Questions and Answers

Most conferences will allow the audience to ask questions and answers after you finish presenting. Your job is to answer the questions as substantively and as succinctly as possible, so that the number of questions is maximized. This is not easy. Here are some tips.

If the question cannot be clearly and loudly heard throughout the entire room, then use your microphone to repeat the question to the entire audience. (It may be helpful to ask the moderator to remind you of this.)

It's OK to pause, compose your thoughts, and prepare your articulation before you say the answer out loud.

- As the speaker, you are in control of the tone and rhythm of the conversation. Don't be afraid of some awkward silence.

If the audience member asked multiple questions, then point that out, and answer one question at a time.

Answer each question with the minimal number of words. As soon as you finish your answer, stop. Move onto to the next question.

- Sometimes an audience member may expend many words to ask a question. That does not necessarily merit a long-winded answer.
- An efficiently worded answer may be the best answer to a verbose question, but the imbalance may be awkward. Do not let that awkwardness push you to speak longer than necessary.

Pay close attention to what is being asked. Hopefully, the audience member articulates the question well with proper English, and the following words will become reasonable guides for how you answer.

- “What” asks for a thing.
- “When” asks for a time.
- “Where” asks for a location.
- “Why” asks for a reason.
- “How” asks for a method, a technique, or an approach.
- “Do”, “Does”, “Is”, and “Are” ask a Yes/No question, so answer with a “Yes” or “No”. If the answer is not self-explanatory, then offer an explanation.
- These guides are not strict, but they are useful and generally work well.

If an audience disagrees with you on substance or points out a mistake, then respond substantively by addressing the issue with honesty and integrity.

- Don't interpret it as a personal attack.
- Don't reply with a vengeful tone.
- If you made a mistake, then admit it right away.
- If the disagreement has substantive value, then acknowledge it right away, and give the audience member credit for offering that contrasting perspective.
- If you sincerely disagree with the assessment, then say so, and do it substantively, but not resentfully.

Write any useful notes from the question-and-answer session into your note book.

After the formal question-and-answer period is over, audience members may come to talk to you on a one-on-one basis afterward during a break. If your presentation was great, many people may wait in line to talk to you.

- Before you talk to them individually, consider getting some water or food to replenish yourself.
- When speaking to each new person, firmly shake their hand, make direct but friendly eye contact and ask them for their name.
- Just like before, answer each question with the minimal number of words.
- As soon as you finish your answer, stop. Thank them for coming, and move onto to the next person.
- Do not allow one person to monopolize your time. Allow others to talk to you.
- Once you have talked to everyone, then feel free to circle back to the first person

Eric Cai works as a Data Science Consultant at [Environics Analytics](#). He also writes his own blog, [The Chemical Statistician](#), where he shares his passion about [statistics](#), [chemistry](#), and [math](#), as well as [career advice](#) for students and professionals. The Chemical Statistician can also be found on [YouTube](#) and [Twitter \(@chemstateric\)](#). You can learn more about Eric's work at Environics Analytics on his second [Twitter page \(@EricCaiEA\)](#).

Reference: Eric Cai's [Blog](#)

Photo by [Peter MacDonald](#)

CRM-SSC Prize in Statistics 2017; Lei Sun

The CRM-SSC Prize in Statistics is awarded annually by the Centre de recherches mathématiques (CRM) and the Statistical Society of Canada (SSC) in recognition of a statistical scientist's professional accomplishments in research during the first fifteen years after having received a doctorate. This year's winner is Lei Sun of the University of Toronto.



Lei's undergraduate degree is in mathematics from Fudan University in Shanghai. She received her PhD degree in statistics from the University of Chicago. Her thesis, supervised by Professor Mary-Sara McPeck, on "Two statistical problems in human genetics" launched her career in statistical genetics, a career for which she is now internationally renowned. Lei joined the University of Toronto in 2001 as an Assistant Professor in the Division of Biostatistics at the Dalla Lana School of Public Health. In 2014 she was promoted to Full Professor, with a joint appointment in the Department of Statistical Sciences and the Division of Biostatistics.

Professor Sun's research program investigates novel statistical methods, and develops powerful computational tools for advancing understanding of the genetic basis of complex human traits. This work has spurred new research directions in statistical methodology, and has also been very influential in genetics research. Her collaborations with Lisa Strug and Andrew Paterson at The Hospital for Sick Children have provided important insights into the mechanisms of cystic fibrosis and type 1 diabetes complications.

One theme of her methodological research is the development of improved large-scale multiple hypothesis testing methods. Together with Radu Craiu and other colleagues, she developed the concepts of the stratified false discovery rate (sFDR) and the non-discovery rate (NDR) for false negatives. This has had considerable impact on current large-scale whole-genome association studies in the human genetics community. For example, a recent *Nature* study by Nik-Zainal et al. (2016) applied the sFDR "to increase sensitivity ... in identification of novel breast cancer genes". Another major area of accomplishment is the development of robust methods for genetic association studies. With Shelley Bull she developed a general resampling-based solution to reduce selection bias, the so-called 'winner's curse' which is an upward bias in the estimated effect of a newly identified variant on disease. An exciting line of work on joint modeling of multiple genetic variants has recently been developed in collaboration with Jerry Lawless and student Andriy Derkach, published in *Genetic Epidemiology*, *Statistical Science* and *Biometrika*.

Lei has an outstanding record of training students and research assistants, and of publishing work with them. Two of her students were finalists, and one the winner, of the Williams Award of the International Genetic Epidemiology Society in 2012, and her student David Soave had his 2015 paper on joint location-scale test selected by the American Society of Human Genetics' Training and Development Committee for its "Trainee Paper Spotlight". She and her team have provided a number of open-source, user-friendly software packages for implementation of her methods. Her 2012 collaborative work in cystic fibrosis at Sickkids with Strug and Johanna Rommens published in *Nature Genetics* has been widely cited and was highlighted by the McLaughlin Centre as one of the "10 Big Stories in Personalized Medicine".

It is not possible to do justice to her many contributions to science in this short article: she has over sixty publications in statistics and medical journals, and her work has been recognized by NSERC and CIHR. External assessments of her research use phrases like "consummate statistician", "research [that] helps to shape the discipline", "originality and insight". We are very lucky to have Lei advancing the fields of statistics and genetics in Canada, and look forward to her future successes.

Lei will present an overview of her work in a [special session](#) at this year's SSC Annual Meeting at the University of Manitoba.

The citation for the award reads:

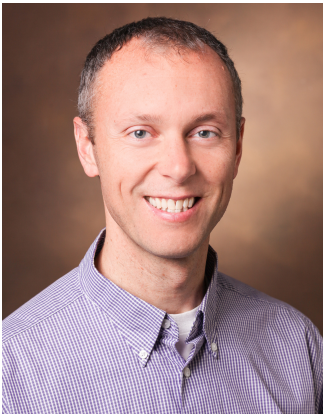
"To Lei Sun, for original and influential contributions to statistical methodology, statistical genetics, and human genetics, including important new developments in false discovery rate control and in robust methods for genetic association studies, and for her outstanding contributions to mentoring and training in statistical genetics in Canada."

Thanks to Nancy Reid, who was primarily responsible for producing this material.

The Canadian Journal of Statistics Award 2017; Bryan E. Shepherd, Chun Li and Qi Liu

The Canadian Journal of Statistics Award is presented each year by the Statistical Society of Canada to the author(s) of an article published in the journal, in recognition of the outstanding quality of the methodological innovation and presentation. This year’s winner is the article entitled “Probability-scale residuals for continuous, discrete, and censored data.” (Volume 44, no. 4, pp. 463-479) by Bryan E. Shepherd, Chun Li and Qi Liu.

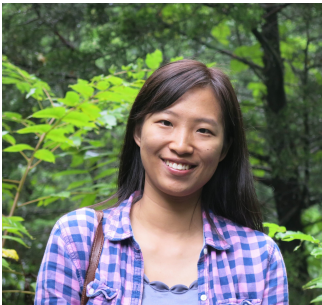
The paper proposes residuals based on a comparison of the two fitted tail probabilities for a response. These probability scale residuals provide diagnostics for models in which numerical differences in response values are not meaningful or when the expectation of the fitted distribution cannot easily be calculated. The paper develops the properties of these diagnostics and shows how they can be useful for a wide variety of data types including censored data.



Bryan Shepherd is an Associate Professor of Biostatistics at Vanderbilt University Medical Center. He received his PhD in Biostatistics from the University of Washington in 2005. His research interests can be broadly summarized as developing and applying novel statistical methods to studies of HIV/AIDS, tuberculosis, and other diseases of global health importance. His statistical methods research has included techniques for analyzing ordinal data, causal inference methods, and approaches for the analysis of error-prone observational data.



Chun Li is an Associate Professor of Epidemiology and Biostatistics at Case Western Reserve University. He received his PhD in Biostatistics from the University of Michigan in 2002. His current research in statistics is on ordinal data analysis, linear transformation models, and large-scale data analysis. He has also worked on statistical genetics for nearly two decades, and has developed methods for a wide variety of data and analysis types in human genetics studies, ranging from linkage and association analyses to design and evaluation of genome-wide association studies, and to design and data processing of next-generation sequencing studies. He is currently working on developing methods to efficiently analyze Hi-C data and single-cell RNA-Seq data.



Qi Liu is a Senior Scientist at Merck & Co., Inc. She received her PhD in Biostatistics from Vanderbilt University in 2016. Her research interests focus on design and analysis of clinical trials, semiparametric regression models, ordered categorical data, and causal inference.

Bryan Shepherd will present an overview of their work in a **special session** at this year’s SSC Annual Meeting at the University of Manitoba.

The citation for the award reads:

The article entitled “Probability-scale residuals for continuous, discrete, and censored data” by Bryan E. Shepherd, Chun Li and Qi Liu is recognized for excellence, creativity, and presentation.

Thanks to Richard Lockhart, who was primarily responsible for producing this material.

Pierre Robillard Award 2017; Andy Leung

This prize recognizes the best PhD thesis in probability or statistics defended at a Canadian university in a given year. Andy Leung is the winner of the 2017 Pierre Robillard Award of the Statistical Society of Canada. Andy's thesis, entitled "Robust Estimation and Inference under Cellwise and Casewise Contamination", was written while he was a doctoral student at the University of British Columbia working under the supervision of Ruben Zamar.



Andy's research filled an important gap in the development of new robustness models and tools to deal with outliers in highly multivariate data. When the number of variables becomes very large relative to the sample size, the classical robustness model becomes unrealistic, unappealing and rather unsatisfactory. Andy's work addresses the limitations of the classical model and proposes a new generation of estimators which are robust against a wider spectrum of data contamination.

Andy grew up in the Vancouver area. He received his BSc degree in Mathematics and Statistics at the University of British Columbia in 2011. He stayed on to do his MSc in Statistics, but very soon transferred to the PhD program. During his graduate studies he also worked as a data analyst for the Ovarian Cancer in Alberta and British Columbia (OVAL-BC) study at the BC Cancer Agency. In the last year of his doctoral studies, Andy joined Ecoation, a Vancouver-based AgTech startup company, where he now works as the lead data scientist.

The criteria used in selecting the winner of the Pierre Robillard Award include the originality of ideas and techniques, the possible applications and their treatment, and the potential impact of the work. The award is named in memory of Professor Pierre Robillard, an outstanding dynamic young statistician at the Université de Montréal, whose untimely death in 1975 cut short what promised to be a highly distinguished career.

Andy Leung will present an overview of his work in a **special session** at this year's SSC Annual Meeting at the University of Manitoba.

The citation for the award reads:

"To Andy Leung, for the thesis entitled "Robust Estimation and Inference under Cellwise and Casewise Contamination".

Thanks to Ruben Zamar, who was primarily responsible for producing this material.

Jim Kalbfleisch 1940-2017

Jim Kalbfleisch, who served the Statistical Society of Canada as President-Elect (1983), President (1984) and Past President (1985), died Sunday, April 23, 2017 at his home in Waterloo. During his distinguished career at the University of Waterloo, Jim served as Vice-President Academic and Provost from 1993-2000, Associate Provost, Academic Affairs from 1990-1993, Dean of the Faculty of Mathematics from 1986 - 1989 and Chair of the Department of Statistics (now Statistics and Actuarial Science) from 1975-79.



Jim was born in Galt, Ontario and grew up in Orangeville, Ontario. He was the oldest of four children; his brother Jack (SSC Gold Medalist, 1994) also served as President of the SSC (1999-2000). Jim did undergraduate studies at University of Toronto, graduating with a BSc in 1963. He received his Master's degree in 1964 and PhD in Mathematics in 1966 from the University of Waterloo. His PhD thesis entitled "Chromatic Graphs and Ramsey's Theorem" was supervised by Ralph Stanton.

Jim began teaching in Waterloo's Department of Mathematics in 1964. When the Faculty of Mathematics was formed in 1967 with Dave Sprott (SSC Gold Medallist, 1988) in dual roles as Dean of the Faculty and Chair of the Department of Statistics, Jim, at age 26, was appointed Associate Chair of the Department of Statistics. He took on many responsibilities in the new Department and guided it through its early years as new faculty members were hired and courses were mounted. At the end of Dave Sprott's term in 1975, Jim became Department Chair and served until 1979. During those formative years, the Department grew considerably and developed internationally-recognised programs of research and teaching in both statistics and actuarial science. Jim retired in early 2001, having spent 26 of his 37 years as a faculty member at Waterloo in administrative posts.

Jim was President of the SSC back in the days when the Society was still young, but ready to grow into what it is today. In 1984 when Jim was President, the transition to the Society’s holding its own annual meetings occurred when the SSC held its annual conference at the University of Guelph independently of the Learned Societies. The idea of an SSC Gold Medal competition had developed when Michael Stephens was President in 1983; the implementation of the first Gold Medal competition occurred while Jim was President and led to the awarding of the first SSC Gold Medal to Don Fraser in 1985. As President, Jim worked diligently to lead the SSC smoothly, professionally and with warm collegiality. He handled Board and Executive Committee meetings with the grace and good humour that characterized the many administrative positions he held over his career.

In addition to his skills as an administrator, Jim was an outstanding teacher, known for his clear exposition. He was the author of the Springer-Verlag books *Probability and Statistical Inference: Volume 1: Probability* and *Volume 2: Statistical Inference*, first published in 1979, and republished in 1985. These books developed from course notes for Math 233 (which became Stat 230 and Stat 231 when the course was divided into two terms), and were the required texts for the Department’s introductory courses for many years. In the preface to these books, he points out that “the content of Volume 2 is unusual for an introductory text. The importance of the probability model is emphasized and general techniques are presented for deriving suitable estimates, intervals, and tests from the likelihood function.” He was an early advocate for using computers in the teaching of Statistics, involving APL in much of his teaching. The basic ideas in Jim’s books and his upper year course notes still provide much of the foundation for undergraduate statistics as taught today at Waterloo.

Jim was elected a Fellow of the American Statistical Association in 1975. In recognition of his contributions to the university, he was installed as Waterloo's first Provost Emeritus at Convocation in June 2001. He was an avid bridge player. Never one to be idle, in retirement he took up knitting and working in stained glass and became an active member of the KW Weavers and Spinners Guild. He also enjoyed the theatre, music and time with family and friends at their cottage on Lake Huron.

Jim leaves his wife Rebecca, their daughter Jane, and sons David (Danielle Droitsch and granddaughter Eleanor) and Brian.

Written by Steve Brown, with help from Mary Thompson, Jerry Lawless, Nancy Reid, and Brian Allen.