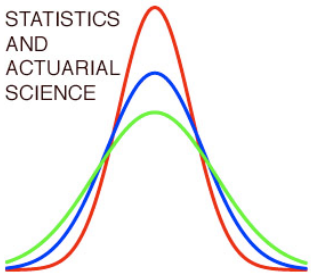
SFU SIMON FRASER UNIVERSITY
STATISTICS AND ACTUARIAL SCIENCE



Newsletter2006

Editor's Note:
This Newsletter covers events in the Department of Statistics and Actuarial Science during the Calendar year 2006. Larry Weldon

Contents of this Issue

A Few Words From The Chair

Dr. R. Routledge

When I last wrote to you all, I reported on the amazing growth in size and stature of the department since we gained autonomy. The department has continued to flourish beyond my expectations. Last winter, we hired Tom and Marie Loughin to spearhead our Surrey initiative. Tom will be coordinating academic initiatives, including a planned move of the Management and Systems Science program to the Surrey Campus; Marie will be developing the Surrey branch of our Statistical Consulting Service. Tom had previously brought his family with him for a sabbatical year in 2004-5. We are delighted to have both Tom and Marie back to take on such important initiatives.

The Department's role in Surrey is burgeoning. Enrolments in several undergraduate courses have grown so fast that we have had to find larger rooms to meet the demand. We are also currently interviewing for a junior faculty position to support Tom in building on this initial success. Larry Weldon and Robin Insley are also teaching for us in Surrey this semester, and Robin is establishing a Surrey version of the Statistics Workshop to help address the increasing enrolment.

Some of you may have attended the formal opening ceremony for the Surrey Campus last September. If you haven't yet seen the campus, it is definitely worth a visit. Bing Thom's architecture is truly stunning – airy and uplifting.

On the Burnaby Campus, our relationship with the emerging Faculty of Health Sciences continues to prosper. Both Charmaine Dean and Richard Lockhart have made seminal contributions to the administration of the new Faculty. Currently, members of our department are helping both to recruit a second junior biostatistician to work with Leilei Zeng, and to fill the Milan and Maureen Ilich/Merck Frosst Chair in Biostatistics for Arthritis and Musculoskeletal Diseases. We are also currently interviewing for a junior biostatistics position in our own department.

Junior department faculty members are doing well. Jinko Graham and Brad McNeney were both promoted to Associate Professor with tenure in 2005. Last year, Joan Hu was granted tenure, and Boxin Tang was promoted to Full Professor. In addition, Charmaine Dean has been awarded a prestigious Burnaby Mountain Professorship in recognition of her extraordinary accomplishments in administration, teaching and research. She is also currently serving as President of the Statistical Society of Canada.

Our actuarial science program continues to attract some of the strongest students on campus. Admission remains highly competitive, and students' success rates on the demanding professional examinations are high.

In addition, the fledgling M. Sc. program has now graduated its first two students under *ad hoc* arrangements. The actuarial faculty remain committed to developing a full program as soon as resources permit.

This newsletter provides me with a uniquely appropriate opportunity to thank Larry Weldon on behalf of the department for his dedicated service over many years. Currently the longest-standing member of the department, Larry is scheduled to retire at the end of this coming August. You will all recognize him as the driving force behind this newsletter. This is just one of the many tasks that he willingly took on in almost 30 years of service at Simon Fraser University. Indeed, he pioneered two vital components of the department's operations. Shortly after his arrival in 1978, he took the lead in formalizing our then *ad hoc* statistical consulting activities. This initiative eventually led to the formation of our current Statistical Consulting Service, for which he was the academic coordinator for many years. Later, when we gained autonomy from the former combined Department of Mathematics and Statistics, Larry accepted the demanding task of chairing the Undergraduate Studies Committee. Indeed, Larry has continued in this role through to the present, stepping aside only for a well-earned study leave. Amongst other tasks in this role, he has advised a great many undergraduates and shepherded key curriculum changes through the lengthy university approval procedure.

Larry's retirement plans are still in the formative stages, but he will start with two major international conferences in Portugal, and then revisiting his friend Andrej Blejec in Ljubljana, Slovenia, perhaps taking a tour on the canal shown here. After that he wants to return to Melbourne to follow-up his study-leave work and renew his friendships there. He also hopes to fit in some boating in local waters – a long-standing plan that is only now becoming feasible.

Finally, I would once again like to encourage each of you to keep in touch with your former teachers. I am reminded of a famous quotation from Shakespeare's *MacBeth*:

"Life is … but a poor player that struts and frets his hour upon the stage and then is heard no more."

Your former teachers' hours upon the stage will have had meaning only insofar as you, our former students, build upon the foundations that we have helped to establish. It is always a pleasure when one of you drops by to chat or sends us an e-mail with news about how you have made use of something we once taught you.

This will be the last time that I write to you as Department Chair. My three-year term expires at the end of August. I tip my hat to those of you who have assumed longer commitments to managerial roles. Although it has indeed been a privilege to chair such an accomplished and collegial department, I am looking forward to reduced demands on my time. Come next fall, if the Vice-President's Office wants to inform me that I have to reformat yet another document that I did not submit according to their requirements, they will have to try to track me down at a field site in a coastal lagoon whose entrance is guarded by reversing tidal falls, passable only for a few moments on a good day.

From the D.A., Sadika Jungic

Change very often presents challenges and opportunities. This last year we have begun to implement the W-Q-B university-wide requirements. Students admitted to the University beginning in Fall 2006 must meet writing, quantitative and breadth requirements as part of any degree program they may undertake. Complete information on these requirements is in the SFU Calendar online at: students.sfu.ca/calendar. In addition, the admission rules for the Department's programs have been changed starting with Fall 2006. Moreover, students being approved for the Actuarial Science or Statistics programs, must maintain a GPA of at least 2.25 on courses labeled MATH, STAT or ACMA. To continue in Management and Systems Science program, students must maintain a CGPA of at least 2.5.

In the period after the last newsletter's publication we continued to cope with the rapid expansion of our department including liaison with the Surrey campus. If the changes continue to take place the Department may find itself in a situation where it might be necessary to hire an additional staff member.

The long awaited and much talked about SIMS 8.9 Upgrade has arrived and, to be honest, it looks good and promising. It offers a number of enhanced features together with many technical improvements. This SIMS upgrade project reaffirms SFU's strategy of ongoing implementation of new technology to support the needs of our students, staff and faculty. As always while facing a new project there is some trepidation in the air but we frankly can say that we are looking forward to getting used to the new system and to enjoying its advantages. Those who are interested in and/or involved with this system should visit http://www.sfu.ca/sims/index.htm for further information.

Just so you don't think it's all good news, we are still desperately looking for undergraduate student union space but it doesn't seem that we are going to acquire it due to severe space deficiencies at the University.

If we haven't bragged to you already, we have been enjoying our renovated lounge, room #10542, which is shared with the Department of Mathematics. Please come sometime and join us for lunch, coffee or tea. If you haven't visited the campus in the last year or two, you'll be very surprised to see how it looks now after the development project has advanced further.

And, to finish with real and recent news, on February 7th, the University has announced having a new brand, a new logo and a new wordmark. You may visit the http://www.sfu.ca/ to see it yourself. Hope to see you here and all the best to you!

Sadika

SFU-Statistics Department - Contribution to the Statistical Society of Canada

For many years our faculty have played a key role in contributing to the administration and vision of the SSC. This year is no exception: Our Professor Charmaine Dean is the President of the SSC this year. Dr. Dean agreed to provide a brief comment for this Newsletter.

The Statistical Society of Canada

The Statistical Society of Canada is a professional home to statisticians throughout Canada. The society supports our discipline by providing networking activities for members and opportunities to hear about research

conducted in a variety of areas through events such as our annual meeting. Some of the highlights of our annual meetings include workshops on state-of-the-art statistical tools and methods as well as opportunities to discuss problems one-on-one with colleagues and experts from across Canada. Because the discipline is so diverse, meetings also provide an opportunity to hear about hot topics in forestry, in climate change, in medical research, genetics, ecology and many other areas.

The society also supports its members through the posting of job opportunities. Several awards recognize excellence in the membership including awards specifically for students and young researchers, and awards for the impact of applied and collaborative work. Through the society you maintain your professional ties, keep your skills up-to-date, stay in touch with colleagues, and make your voice heard on statistical issues.

The society offers accreditation for its members. Accreditation is a designation that indicates the holder has achieved an acceptable level of competence in the understanding and application of statistical methods and is bound by a Code of Ethics. There are two levels of accreditation: Professional (designated as P.Stat.) and Associate (designated as A.Stat.). Applications are accepted twice annually – for information on deadlines and the benefits of accreditation, including mentorship opportunities, see http://www.ssc.ca/accreditation/documents/accreditation_e.pdf

I encourage you to consider joining the society – take a moment to look at our website www.ssc.ca which displays the host of activities with which the society is involved. The society has four Sections which offer particular focus in Biostatistcs, Business and Industrial Statistics, Survey Methods and Probability. Our website provides information on the Sections and how to join them as well as information about our annual meeting, including the special events and workshops offered at the meeting. In 2007, the annual meeting will be held on Canada's eastern shores in Newfoundland. The meeting will be held in Ottawa in 2008, and in Vancouver in 2009.

Charmaine Dean
President, Statistical Society of Canada

Science helps fight forest fires
July 13, 2006, volume 36, no. 6
By Diane Luckow

Charmaine Dean, SFU professor of mathematics and statistics, seeks to improve Canada's forest fire management practices. As forest fire season gears up, forest managers are faced with serious dilemmas.

Can they, for example, move fire-fighting equipment and personnel around the province without compromising fire safety in their home precincts? Or, where should they use fire suppression techniques, given the wind direction, type of vegetation and the 'fuel' on the ground?

A national pilot project to improve Canada's forest fire management practices is developing sophisticated new software tools that simulate these situations and help answer these complex questions.

Charmaine Dean, SFU professor of statistics, is leading the project. She's coordinating the research of 21 people in academia, industry and government across Canada who are examining forest fire management, forest ecology and forest hydrology.

Dean is an expert in spatial modeling. She says a lot of statistics and computer science underpin the visualization techniques the researchers are using to develop computer simulations and statistical models for forest managers, governments and politicians.

The group's plans include improving the fire danger rating system, creating fire management visualization tools for a variety of wind and weather scenarios, and developing tools for issues such as predicting vegetation succession and characterizing resistance to mountain pine beetles.

"This is a massive project," says Dean. "Canada lacks sophisticated tools like these."
Funding for the project comes from NCE GEOIDE (Geomatics for Informed Decisions), the National Program for Complex Data Analysis and partner agencies.

Dean says most of the money will be spent on training graduate students to become a new breed of experts in forestry, computational methods, spatial statistics and data visualization.

"After the pilot phase," says Dean, "we aim to develop a national centre of excellence for this work."

Environmental Issues

Several Faculty are "ahead of the curve" as represented by the recent rush of politicians to embrace environmental issues. Rick Routledge has been working for years with marine scientists to expose the risk to wild salmon stocks of certain kinds of fish farms. Carl Schwarz has had a long interest in the methods for estimating wildlife populations including the size of salmon runs. Charmaine Dean has been involved with studying the long term effects of forest fires in BC. More recently, Tom Loughin was photographed with an injured gyrfalcon captured on Long Beach, Washington. The photo captioned " Tom and Eddie", is courtesy of Dan-Dan the Birdman.

SFUs MSSC program is among Tom's diverse interests. Tom penned the articles below concerning the move of the MSSC program to the Surrey campus, and the new curling group he has initiated at SFU.

Dr. Tom Loughin

News from the Surrey Campus and the MSSC Program

Tom Loughin reports that developments at the new Surrey Campus are progressing as planned. Following the official opening of the campus in September, enrolments in Statistics classes at Surrey were much higher than they have been in the past. With the growth of other programs on campus, it is anticipated that there will be a corresponding growth in the classes offered, and possibly the development of new courses specifically for Surrey. In addition, the Management and Systems Science (MSSC) program is being revised and is scheduled to move to the new campus in Fall, 2007, where it will take advantage of courses offered through the new Operations Research Program in Mathematics. A key feature of the MSSC program is the MSSC Seminar, which brings individuals from business and industry onto campus to talk to the students in the program about their professional experiences. If you would like to return to campus and talk with some interested MSSC students about your work, please contact Tom Loughin (tloughin@sfu.ca) , who will direct the program upon its move to Surrey.

To help in with the inevitable increase in demand for Statistics courses, the department is hiring another full-time faculty member to work on the Surrey Campus. Additionally, the new campus is expected to generate a need for statistical consulting services, both within SFU and throughout the Fraser Valley. To help manage this new load, the department has hired Marie Loughin as the Director of Statistical Consulting for the Surrey Campus. Marie brings with her nearly 20 years of experience as a statistical consultant and an applied statistician and is a welcome addition to our Statistical Consulting Center.

Another of Tom's pursuits is Curling – on ice that is. There was never a curling team in stats until Tom arrived! Here is his report.

Stats/ActSci Curlers Make Strong Showing

Long known for its basketball prowess, the department has begun a foray in another direction with the recent formation of a curling team. The team took shape when new faculty member Tom Loughin was lamenting the fact that he had been unable to get onto a team at his nearby curling club. Derek Bingham and Crystal Linkletter suggested that the Tom form his own team and volunteered to be on it. They added Marie Loughin and Randy and Deanna Sitter, giving the new team a grand total of zero years of club curling experience.

The team has been surprisingly successful on the ice. Despite Tom's primitive approach to Skipping ("Point and Pray" is what he calls it), the team has actually won several matches against more veteran teams. Crystal, who plays Third, attributes this to the team's ability to "play Plan B like no one's business." (For those unfamiliar with curling terminology, "Plan B" is what you hope will happen after it becomes apparent that the rock that is heading down the ice is not going to end up anywhere near its intended target.) The team has shown steady improvement throughout the fall and looks forward to the resumption of the season after the start of the year.

Progress Report on Actuarial Science

The Actuarial Science program continues to grow. The department now counts three full-time faculty members specializing in actuarial science. The hiring of Cary Tsai, and more recently Yi Lu, allowed us to increase the number of ACMA courses offered every year. Since two years ago, the six required actuarial courses are offered once per year. In addition, three new 400 level courses have been created. We plan on offering them at a lesser frequency, as resources permit. They cover the mathematics of demography, introduction to property and casualty insurance, and the theory of pension. So far we have been very fortunate to recruit highly qualified sessionals to teach some of our courses. Barbara Sanders, FSA, has taught four actuarial courses in the last three years. Camille Minogue, PhD, FCAS, from ICBC has taught the first offering of Property and Casualty Insurance last Fall.

The requirements of our undergraduate programs and specific course contents have been updated to reflect the changes in the Society of Actuaries' education redesign. The programs continue to offer formal training for the first four professional exams and partial training for the more advanced ones. They also aim to prepare students to work as actuaries by including discussions of practical problems during lectures, and assigning comprehensive term projects in certain courses.

Since 2005, a number of courses offered at SFU can be used to satisfy the Validation by Educational Experience (VEE) requirements of the Society of Actuaries. Courses in three areas, Applied Statistics, Corporate Finance and Economics, have to be submitted for approval on a regular basis. We are committed to offering enough approved courses for our students to get those professional educational credits.

The procedures and criteria that had been used for admitting students into actuarial science programs have been formalized. Anyone interested in joining our programs must complete most of the lower division requirements and maintain a minimum GPA of 3.0 before applying for admission. Students can now submit their applications online. The vast majority of the 25-30 students admitted each year have been successful in passing three or more professional exams by the time they graduate and they all have the potential to do well on their Fellowship exams.

Egon's hard work with students and employers has helped the growth of our co-op program. We have been able to place students in co-op positions, both locally and across the country. The feedback received by employers hiring our students has been very encouraging. We hope that soon all interested students will have the chance to gain some practical experience before graduating.

At the graduate level, an Actuarial Science MSc program has been created. Given our limited resources, only three graduate actuarial courses have been offered. The courses cover topics in risk measures and ordering, advanced actuarial models, and analysis of insurance portfolios. Students can complete the program requirements by taking the remaining courses mostly in statistics, but also in mathematics, business administration or economics, with permission of their supervisory committee.

In its short existence, the graduate program in actuarial science has attracted excellent students, three of them being recipients of an NSERC CGS-M award. Five students are currently enrolled in the program and we expect to have another 4-5 joining us next year.

The program had its first two graduates defending their projects last July. Gurbakhshash Singh worked on modeling aggregated returns with application to segregated fund guarantees. Since graduating, he has been working at Leong and Associates in Vancouver. For her project, Natalia Lysenko produced a stochastic analysis of life insurance surplus. She was awarded the second student presentation prize at the Actuarial Research Conference held in Montreal in August 2006. She is currently pursing a PhD at ETH in Zurich.

Gary Parker

Statistics at the Surrey Campus

Larry Weldon decided to experience the Surrey campus during his last teaching semester before retirement. The building is truly spectacular both in its interior spaces and exterior views. Here are some Surrey campus images, including one winter view from the 14th floor, the tower from the parking lot, the main lobby, the galleria, and an inside view of the front doors from the 4th floor.

Dean Vrecko Wins Teaching Award

Professor Randy Sitter taught STAT 330, Introduction to Mathematical Statistics, in the Spring semester of 2006. Randy was so impressed with the teaching assistance of Dean Vrecko, he nominated him for the 2005/2006 Faculty of Science Excellence in Teaching Award. Dean Vrecko did win the award and received both recognition and a monetary award from the Dean of Science. Dean is a graduate student in our department and is studying under the supervision of Professor Rachel Altman. His MSc project involves efficient designs for multiple sclerosis clinical trials using MRI data as an outcome. Dean's other passion is travel – while his supervisor was on leave, he and a friend spent three months backpacking from Cairo to Cape Town – good source for adding color to those tutorials!

Wildlife Studies Attract Shrum Chair
February 09, 2006, vol. 35, no. 3
By Jennifer Gardy

With sightings of deer, bears and other wildlife so common at SFU's Burnaby Mountain campus, it often feels as if we're closer to nature than we are to the city.

For recently appointed faculty of science Shrum chair Steven Thompson, our lush forests and their denizens represent a return to his academic roots.

Thompson, a professor in the Department of Statistics and Actuarial Science, began his scientific career as a math major. Over the course of his studies, he cultivated an interest in issues surrounding wildlife ecology, particularly the study of bears in their natural habitat.

"I had an interest in finding study methods to estimate the number of bears without handling or otherwise disturbing them," he notes.

Discussions with wildlife researchers led him to the study of the statistical aspects of ecology, and after completing a PhD at Oregon State University in 1982, Thompson headed north to Alaska's bear country.

"From grad school, I took a position in Kodiak with the department of fish and game," recalls Thompson. "It was a great place – amazing amounts of fish and wildlife, a fjord-like coastline and lots of natural beauty."

During his five years on Kodiak Island, Thompson worked on issues surrounding the commercial fishery. This work would form the basis of his career-long investigation into adaptive sampling methods – techniques that can be used to study hard-to-sample populations.

"Kodiak is where I first had the ideas for adaptive sampling – from going out on the survey vessels – because the fish were so unevenly distributed," says Thompson.

"Animals, the commercial fishery, migrating birds – all of these populations are extremely uneven, unpredictable and very patchy," Thompson explains. Adaptive sampling allows researchers studying these populations to more accurately estimate population characteristics by modifying their sampling techniques based on initial observations.

"When the survey vessel found low (fish) abundance in an area, they could move on to another area," Thompson says, "while when they found extremely high abundance, they could spend more time in that area."

Adaptive sampling also has uses beyond wildlife measurement. The technique can be applied to the study of human populations, including one of particular interest to the Lower Mainland public health community.

"I was asked to look at populations at high risk for HIV such as injection drug users and sex trade workers," says Thompson. "There's no standard way to sample these people."

"With adaptive sampling, social scientists and field workers identify some of these people, talk to them, gain their confidence and find out who their social contacts are. They can then be introduced to these

people, too. It's the adaptive sampling idea but using social links."

More recently, Thompson has investigated sampling procedures for moving populations.

"We were motivated by the problem of placing sensors to detect harmful micro-organisms in the atmosphere, but the results apply to any situation where the population and the sampling units move, like surveys of migrating whales from boats."

At SFU, Thompson plans to continue his research into sampling techniques for both animal and human populations, and is interested in exploring the integration of experimental design with sampling.

Thompson is especially excited about the opportunities that the position of Shrum chair affords.

"I can get out and talk with people in different fields, which is something I've always liked to do."

Continuing Education

Carl Schwarz

Many students in other disciplines take at most 2 and rarely 3 courses in statistics while in their undergraduate program. When they arrive in their work forces, they experience a rude shock -- they are suppose to collect and analyze the data by themselves with little assistance from faculty. After a few years, many realize that they need to refresh and upgrade their statistical background.

Our department has an active outreach program. One example of this outreach are course offered by Carl Schwarz who has been literally flying around the province of BC offering courses to biologists from the BC Ministry of Environment. These have been short course (1-3 days) on diverse topics such as introductory statistics, regression, logisitic regression, mark-recapture methods. In the last two years, he has given over 23, 3-day short courses!

The main criteria that Carl uses to decide where to offer such course are proximity to ski hills and the opening of the ski season!

Please contact the Department for more details on these and other short courses offered by the Department.

Grad Students Want More Seminars!

This year students decided that they wanted to supplement the active departmental seminar series with a series of their own – for students and by students.

The student seminar series included presentations by our graduate students Gurbakhshash Singh "Segregated Funds and the Issue of Insolvency", John Bentley " A mixture model of Von Mises and Uniform distributions for analyzing circular data problems.", and Pritam Ranjan " Existence of Disjoint Randomization Defining Subspaces". These seminars were in addition to the dozens of departmental seminars and the Joint UBC-SFU series of Seminars.

We have an active and enthusiastic group of graduate students!

Donations to Endowment Funds

We are very grateful to the following individuals and organizations for donations to our Statistics and Actuarial Science Endowment Fund.

Bingham	Derek
Chan	Jonathan Kai Lun
Dean	Charmaine
Graf	Alexander Robert
Hare	Kevin
Harrop	Ronald
Hsu	Irene Hui-Kong
Hu	Xiaoqiong Joan
Kwok	Tsun Yin Joseph
Lee	Lai Yin
Lee	May Kuen
Liu	Szu Hung
Lu	Yi
Lysenko	Natalia
Mallory	Malcolm James
Parker	Gary
Shen	Ran
Sutherland	Jason Murray
Szeto	Erica Wai-Ka
Szeto	Margaret
Talling	Douglas Norman
Tang	Boxin
Taylor	Carolyn Gail
Thompson	Steven Kirk
Tsai	Cary Chi-Liang
Weldon	K.Laurence
Yuen	Henry

Fan Seafoods Limited
Statistical Society of Canada

For information on how to contribute to this endowment fund, please contact Sadika Jungic at 604-291-3665 or sjungic@sfu.ca.

We share the coordination of the program in Management and Systems Science (MSSC) with the Mathematics Department. Currently we are coordinating the program. We acknowledge with thanks the donations of the following individuals and organizations to the MSSC Endowment Fund:

Alspach	Brian
Baker	Mark
Bromley	Clifton Harold
Bryant	Lynne
Chan	Vincent Ti-Fong
Cheung	Nam-Ping Cheryl
Cipryk	Sharon Louise
Cook	Jean
Cunningham	Terry
Escalante	Christopher Ramon
Evenden	William A.
Fok	Andy Ka Po
Fung	Judianna M L
Gill	Bob
Hadinata	Martinianus Buditjahya
Heinrich	Katherine
Hirji	Karimkhan
Hurley	Pat
Jaffer	Mahmood Sultan
Jamieson	Robert Lynn
Johnson	Valerie
Kainth	Gurdeep S.
Kitt	Lawrence Donald
Kuo	Yuh-Shiow
Lemon	Robert B.
Leong	Corklin Alan
Li	Yiu Kwong Steven
Lim	Miin Jye
Meijer	Gina Sturgeon
Monagan	Michael B.
Ng	Helen Ching-Ching
Paz-Prizant	Fanny
Popham	David
Porter	Charles H.
Raabe	Doreen Mathilda
Saugen	Douglas W.
Schellekens	Harold Peter Martin
Sciarretta	Karen Nancy
Stafford	Andrew Geoffrey
Stimpson	Adrian Paul
Swinkels	Godfried Maria
Tham	Patrick Kong Chee
Vanspronssen	Robertus Arnoldus
Zmrhal	Randy

Accenture Inc. (Charitable Foundation)
Arthur Andersen Charitable Foundation
Humber College

The income from the endowment supports awards and scholarships for students in our major and honors programs.

For information on how to contribute to this endowment fund, please contact Sadika Jungic at 604-291-3665 or sjungic@sfu.ca.

MSc Projects and PhD Theses – A Diverse Range of Topics

Human genetics and health, sockeye salmon, investment risk, industrial design, circular data, and spatial data - these are among the topics spanned in this year's M.Sc projects and PhD theses.

Theses completed in the last 12 months

Semester	Author	Degree	Title	Advisor
2006-3	Lekivetz, Ryan	M.Sc.	A New Algorithm for Obtaining Mixed-Level Orthogonal and Nearly-Orthgonal Arrays	D. Bingham
2006-3	Bentley, John	M.Sc.	Modelling circular data using a mixture of von Mises and uniform distributions	R. Lockhart
2006-3	Buchanan, Seana	M.Sc.	Factors influencing the early marine ecology of juvenile sockeye salmon (O. nerka) in Rivers Inlet, British Columbia	R. Routledge
2006-3	Feng, Xin (Cindy)	M.Sc.	Confidence intervals for proportions with focus on the US National Health and Nutrition Examination Survey	R. Sitter
2006-2	Chen, Zhijian	M.Sc.	Approximate likelihood inference for haplotype risks in case-control studies of a rare-disease	B. McNeney/ J. Graham
2006-2	Pratola, Matthew	M.Sc.	Design on Non-Convex Regions: Optimal Experiments for Spatial Process Prediction	D. Bingham
2006-2	Singh, Gurbakhshash	M.Sc.	Modeling Aggregated Returns with Application to Segregated Fund Guarantees	G. Parker
2006-2	Lysenko, Natalia	M.Sc.	Stochastic Analysis of Life Insurance Surplus	G. Parker
2006-2	Ying, Celes	M.Sc.	Generalized longitudinal data analysis with applications to evaluating hospital utilization based on administrative databases.	J. Hu
2006-2	Zamar, David	M.Sc.	Markov Chain Monte Carlo Exact inference for binomial regression models.	J. Graham/ B. McNeney
2006-1	Pickard, Darcy	M.Sc.	Evaluating the effectiveness of rehabilitation actions in creating fish habitat in the Trinity River.	C. Schwarz
2005-3	Nathoo, Farouk	Ph.D.	Mixture models for spatio-temporal multi-state processes	C. Dean

2006
Statistics and Actuarial Science Awards

The Department of Statistics and Actuarial Science is pleased to honor its students, staff, and faculty every year during our Annual Awards Reception. A full copy of all of the award winners is available on our web site at
http://www.stat.sfu.ca/people/awards/

The Department has 6 major awards:
- The Watson Wyatt Scholarship for students with high standing in Actuarial Science established by the Watson Wyatt Company.
- The Pacific Blue Cross Scholarship for students with high standing in Actuarial Science established by Pacific Blue Cross.
- The Statistical Society of Canada (SSC) award
- The Statistics and Actuarial Science Endowment Awards (three awards) funded by earnings on our departmental endowment fund.

Here are some stories from the major Award Winners. Following these is the more complete list of award winners during Fall 2005 to Fall 2006.

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Watson Wyatt Scholarship

Feng Li

This scholarship is awarded annually to a student in an approved Actuarial Science program who has completed ACMA320. It is granted on the basis of academic performance.

Feng Li writes:

When I arrived at Vancouver International Airport as a new immigrant from China a few years ago, I knew nothing about actuary. I got my Bachelor Degree of Engineering in China and worked in computer industry for nearly 10 years, but the new life in Canada just gave me an opportunity to think about a new career. I was looking for a career which can use all of those skills I was very good at: mathematics, computer, and interest with finance and investment subjects. It did not take me a long time to find actuary is what I was looking for. In the spring semester of 2005, I got the admission of the actuarial science major program after the first two struggling semesters in SFU.

The study in this program seemed more interesting than I expected before. All of those courses are fascinating. During the study time, my first child little Alexander was born here. I was hilarious but became very busy with bottles and diapers while taking classes.

I'm very proud of myself that I succeeded in managing a balanced time for my family and my study. I kept my good GPA and still enjoyed a good time with my family at the same time. Here I must thank my thoughtful wife who took most responsibility for taking care of little Alexander.

I'm just at the end of my program and doing my first co-op term in retirement department of Mercer Human Resource Consulting. I come to realize the knowledge I studied from our actuarial program is very necessary and useful for me to work in this area. I passed two SOA exams and am going to write two more exams in this May. I've got the admission of the master program for actuarial science and statistics in this department and am very excited with further study and research in this fascinating area.

At the end, I must express my sincere gratitude to the professors and staffs in this department who provide me a lot of valuable advices and give me tremendous help. Without their support, I could not go so far. There is still a long way for me to achieve my future career goal as an excellent actuary, therefore I need to continue working hard and hope I can accelerate this journey.

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Pacific Blue Cross Scholarship

Rong Li

One Pacific Blue Cross Scholarship in Actuarial Science will be made available in any semester, based on academic merit, to a 3rd or 4th year student with a declared major in Actuarial Science.

Rong Li writes:

Four years ago, I joined my family in Canada to try a different life style. As a new comer, when I was overcoming the first obstacles such as language problems, culture shocks etc, I was also searching for something that I really wanted to do--- a career that I would love in life long period. Since I have always been interested in numbers and actuarial science involves a lot of math and statistics, I chose to go back to school to study actuarial science at SFU. After three years study, I'd say that I made the right decision at that time. I really enjoyed my life and my study here in SFU. In the past three years, I did very well in all my courses. The more I learned about actuary, the more I liked it, especially its applications in real business world. My experience of going back to school after several years working is also very valuable to my studying. I know exactly what I want and what I need to do to reach my goals. Meanwhile, as a wife and a mother of two children, I always tried to spend as much time as possible with my family to perform my role, even though sometimes it's really not easy to spare time from high volume assignments and readings. At my hard times, thanks to my husband and my kids, their love and support made it possible for me to find the perfect balance point in my life and study. I planned to graduate next year. My next move will be graduate study or hunting for a job in actuarial filed. I believe that will be lots of fun!

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Statistical Society of Canada

(Rina) Meng Jie Wang

The Statistical Society of Canada Award will be presented to an undergraduate student who is a declared major/honors in Statistics and/or Actuarial Science. The criteria for selection for the award are academic merit and a commitment to the mission of the SSC. The SSC is a national organization representing statisticians from across Canada. Its mission is to encourage the development and use of statistics and probability.

To achieve this, the Statistical Society of Canada:
- helps to develop a public awareness of the value of statistical thinking and the importance of statistics and statisticians in Canadian society;
- works to ensure that decisions affecting Canadian society are based on appropriate data and valid statistical interpretation;
- promotes the highest possible standards for statistical education and practice in Canada;
- promotes the development of statistical methodology;
- promotes a sense of community among all statisticians in Canada;
- provides a forum for the exchange of ideas between theoreticians and practitioners of statistics.

This award was generously endowed by the Statistical Society of Canada using proceeds of the net revenue from the SSC Annual Meeting held at Simon Fraser University in 2001.

The Statistical Society of Canada Award will be presented to an undergraduate student who is a declared major/honors in Statistics and/or Actuarial Science. The criteria for selection for the award are academic merit and a commitment to the mission of the SSC.

Rina Wang writes:

I immigrated to Canada about four years ago with my parents after finishing high school in China. I was majoring in Science at high school and Mathematics was my favourite subject. Because of my excellent grades in Mathematics, I was the only teaching assistant in my class for 3 years.

Before coming to SFU, I took the first year's university transfer courses at Langara College. I got straight A+'s in Mathematics, Statistics and Economics courses, and received the Ernest E. Livesey Memorial Mathematics Scholarship in 2003. My Mathematics teacher suggested that I study Mathematics at university. I felt that Statistics, Economics and Finance are all as interesting as Mathematics and I wanted to do something more than pure Math. At the same time, I met Natalia Lysenko, who was my TA and classmate in many courses, and learned about the Actuarial Science program at SFU from her. After some research on Actuarial Science, I believed it would be a

good choice for my university study and future career path.

ACMA 310 was my first course in the Actuarial Science program at SFU. I had learnt about interest calculation before, but never thought there could be so many different types of questions about interest and present value calculations. I was amazed by the course and decided to continue studying in Actuarial Science. I have now completed most of the ACMA courses. The ACMA courses were very challenging at the beginning, but soon became very interesting once I understood the concepts behind the formulas. Also thanks to these ACMA courses, I have passed SOA Exams 1 – 4 already and I'm currently starting the Fundamentals of Actuarial Practice (FAP) modules.

I have been doing my 12-month co-op work term at DA Townley & Associates since May 2005. As the only actuarial student working in the pension department, I have been assisting the actuary on various projects. I got a chance to apply my academic knowledge and analytical skills into real life practice. And more important I have a better idea about what an actuary, especially a pension consultant actuary, does on a daily basis. I expect to come back to school in September for my last semester and then start my professional career as a consultant actuary.

Now in the final year of my undergraduate study, I feel very fortunate to soon graduate with an Actuarial Science degree. And thanks to all of the good professors and classmates I met in the Actuarial Science program, I enjoyed my academic journey at SFU very much. I will continue working in the actuarial industry after graduating and hope to achieve my ASA and FSA destinations within the next 2 years.

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Statistics and Actuarial Science Endowment Awards

These awards are presented to students in the major/honor program with high academic standing.

Raymond Chiang

When I first arrived at Port Moody Secondary, I sat at the back of classrooms, knew next to no one, and had serious doubts about the International Baccalaureate (IB) Diploma Program.
But one day, my math teacher asked us a peculiar question, "Anyone here know what is an actuary?"

I admit the job description did not immediately captivate me. I took note of the title simply because my strength has always been in mathematics and I wanted to make it my career. Nevertheless, I knew the prospect was bleak; as Randy (Dr. Sitter) had bluntly put it, "Math majors should consider statistics-if you want to eat." Being an actuary seemed like an acceptable compromise at the time.

Ironically, as IB bombarded me with essays, research papers, lab reports, and oral

commentaries, I suddenly found myself enjoying the program. I became tight friends with my fellow "dips", students in the same diploma program, though many of whom later decided that this piece of paper was not as valuable as their teenage social life. Nonetheless, I became addicted to being challenged. I was forced to face my weaknesses, such as public speaking, and I improved. I took on more responsibilities, began to think critically, ran clubs, and participated in competitions. I graduated from IB with no regrets and as a better person.

I also graduated with a much clearer goal: to become an actuary. Actuarial science is a very broad subject; it spans across multiple disciplines such as mathematics, statistics, finance, and computer science, all of which are my interests. It is also very challenging and rewarding. The prestige of the program attracts the brightest students of SFU and I find their diligence infectious. It is also fascinating to meet students from different parts of the world and from different stages of their academic career.

As for my future, I will soon begin an eight-month co-operative work term at Pacific Blue Cross. I look forward to applying my actuarial and statistical knowledge to the field of health insurance. The experience should help me decide whether I should focus on the life and health discipline or the property and casualty side of actuarial science. I plan to complete the first two SOA exams during my work term as well. Along with my new duties as an ASNA (Actuarial Students' National Association) delegate for SFU, my next few semesters will certainly be action-packed. By setting lofty goals, I expect my graduation from SFU to be as fruitful as my graduation from IB.

Yi Zhang

Almost three years ago, I made a very important decision in my life and I left Beijing for Vancouver Canada with excitement, expecting to get a better education in a Canadian university.

I started my study at SFU in Jan. 2004. I surprisedly found that there are so many academic programs and courses at SFU for students to choose. However, at the very beginning, I was simply not sure which subject and program I should choose as my major. I liked Mathematics very much in both my junior and senior high school's studies and always got good grades. Therefore, having a rough idea that I should choose a program which is closely related to mathematics but also applicable in our daily life, I selected most of my courses in Math and Statistics.

The first time I heard about Actuarial Science was when a friend of mine showed me the web-site of "be an actuary.org" and the words "career without boundaries" aroused my interest immediately. So I could not help looking into it in more details. The more I searched, the more I felt interested in it. And I finally realized that Actuarial Science was just what I was looking for. However, at first, I felt a little bit hesitated to apply to go into the Actuarial Program, because I had heard that the Actuarial Science Program at SFU is quite good, but very competitive. Particularly its ACMA courses are very challenging and difficult to learn. But still, my great interest in the subject pushed me

forward. So I started to fill out all the required courses of the Actuarial Science program. Even though some of the courses proved to be very difficult and tough, and sometimes even let me feel frustrated, I still strove for further progress and best result as possible.

In the spring semester 2006, luckily enough, I was accepted into Actuarial Major Program with an outstanding GPA. The actuarial science study has proved to be very challenging, fascinating and very fruitful to me. I really enjoy the academic discussions about material and difficult problems in Actuarial courses and Statistics, which I should say benefited me a great deal. Along with my studies, I am getting to have a clearer picture of how it is like to work as an actuary and I have found my interest in this profession increasing day by day.

Of course, I know Actuarial Science is by no means an easy major, it needs great diligence and devotion. And to become a qualified actuary, there is still a long way for me to go. I know I will have to face the increasing difficulty of the course materials and have to overcome a lot of difficulties in my future study and work. However, I firmly believe that as long as I continue to study and work hard, I shall finally reach my goal one day in future.

Department of Statistics & Actuarial Science Awards - 2005-2006

Undergraduate Awards

Undergraduate Open Scholarships:
Leo Cheng 1057,1061
Raymond Chiang 1054,1057,1061
John Kowalik 1057
Melissa Kristensen 1057,1061
Victoria Laan 1054,1057,1061
Rong Li 1054,1061
Monica Lu 1054,1057,1061
Suli Ma 1054,1057
Eunjoo Park (Julie) 1054
Meng Jie Wang (Rina) 1054,1057,1061
Xiao Wang 1057
Kuan-Chiun Wu (Kyle)1054,1057
Jinhuang Yan 1061
Yi Zhang 1054,1057,1061

SFU Alumni Scholarship
Raymond Chiang 1057,1061
De Hu (Robbin) 1057,1061
Feng Li 1057
Rong Li 1054,1057
Xiao Wang 1057
Yi Zhang 1057,1061

Faculty of Science Alumni Scholarship:
Feng Li 1054

Dean's Undergraduate Studies Convocation Medal:
Natalia Lysenko 1051

Dean of Science Award:
Feng Li 1057

Pacific Blue Cross Scholarship:
Rong Li 1061

Statistics & Actuarial Science Endowment Award for excellent achievement in the Majors & Honors program:
Raymond Chiang
Yi Zhang

SSC Endowment Award:
Meng Jie Wang (Rina)

R. Bruce Coles Memorial Scholarship:
Chun-Kai Liao (Kenny) 1061
Jie Liu 1061

Watson Wyatt Scholarship:
Feng Li 1061

Graduate Awards

NSERC Industrial Postgraduate Scholarship:
Carolyn Huston 1057-1067
Mark Wolters1057-1067

NSERC PGS M Scholarship:
Kyle Vincent 1067-1074

Michael Smith Foundation for Health Research Senior Graduate Fellowship:
Kelly Burkett
Jean Shin
Eric Sayre

SFU Special Graduate Entrance Scholarship:
Ryan Lekivetz

CONACyT Graduate Scholarship:
Elizabeth Juarez Colunga

CIHR Doctoral Research Award:
Kelly Burkett

C.D. Nelson Memorial Graduate Scholarship:
Kyle Vincent 1067

PhD Graduate Fellowship:
Crystal Linkletter 1057
Kelly Burkett 1061
Pritam Ranjan 1064
Chunfang Lin 1064

MSc Graduate Fellowship:
Matthew Pratola 1057,1064
Shih-Wa Ying (Celes) 1064
Li Xing 1064
Xin Feng (Cindy) 1064