



CHASE REPORT

NEWSLETTER OF THE DEPARTMENT OF MATHEMATICS AND STATISTICS

MAY 2002

DALHOUSIE UNIVERSITY

HALIFAX, N.S.

CONGRATULATIONS TO ALL OUR GRADUATES

AWARDS WINNERS

Sir William Young Gold Medal in Math

James Michael

Ralph & Frances Lewis Jeffery Scholarship

James Michael

Michael Lejeune

Barry Ward Fawcett Memorial Prize

Sarah McCurdy

Ken Dunn Memorial Prize

Adam Clay

Katherine M. Buttenshaw Prize

John Klapstein

Bernoulli Prize

Joshua Knauer

Waverly Prize

Deepti Limaye

Emil and Stella Blum Award in Mathematics

Jana Archibald

Ellen McCaughin McFarlane Prize

Hannah McKenzie

KILLAM AWARD WINNERS

Mathematics *Richard Hoshino*

Tara Taylor

Jin Yue

Statistics *Connie Stewart*

NSERC AWARD WINNERS

NSERC PGS-A awards: *Richard Hoshino*

James Michael

NSERC PDF: *Reza Yahaghi*

GRADUATING HONOURS STUDENTS

Honours - Mathematics

Jamie Carter

Honours

Michael Lejeune

Honours

James Michael

First Class Honours

Congratulations to *Chris Michael & John Klapstein* who won the APICS Math. Competition in October 2001, at St. Francis Xavier University.

GRADUATE STUDENTS

Recent Graduates:

October 2001 Convocation:

Mathematics

Carl Hickman, PhD

Troy Ashby, M.Sc.

Statistics

Xiaofei Shi, M.Sc.

Bo Lin, M.Sc.

Dan Kehler, M.Sc.

May 2002 Convocation:

Mathematics

Dale Garraway, PhD

Rami Filfil, M.Sc.

Mark MacIsaac, M.Sc.

Statistics

Mei Yang, M.Sc.

WELCOME TO OUR UNDERGRADUATE SUMMER RESEARCH STUDENTS

NSERC Undergraduate Student Research Awards:

Adam Clay (supervisor: *Keith Johnson*)

Ehab Eshaya (supervisor: *Ray Spiteri*)

Paul Sheridan (supervisor: *Keith Johnson*)

John Richard Freeman Warr Undergraduate Student Research Award:

Jesse Rusak (supervisor *Ray Spiteri*)

Faculty Summer Research Students:

<i>Irina Hole</i>	(Jeannette Janssen)
<i>Sara Cole</i>	(Ray Spiteri)
<i>Michael Greene</i>	(Andrea Fraser)
<i>Joel Patterson, St.Mary's</i>	(Pat Keast & Paul Muir)
<i>John Klapstein</i>	(Keith Johnson)
<i>Katie Gardner, Acadia</i>	(John Clements)

ROSEMARY GILL AWARD

Late Breaking News: Gretchen Smith has been awarded the 2002 Rosemary Gill award. The late Rosemary Gill was a popular doctor who served as Director of University Health Services. The award bearing her name honours employees who make an exceptional non-teaching contribution to the life of students, faculty and staff. It celebrates people who exemplify Rosemary Gill's generous spirit.

ALUMNI NEWS

Professor Kori Inkpen (class of '92) left Simon Fraser University to take up a faculty position in the Faculty of Computing Science at Dalhousie this year.

Stacey Scott (class of '97) followed her supervisor (Kori Inkpen) to work on her Ph.D. degree in C.S. here at Dalhousie.

Annik Martin, (MSc. 1999), who did her Master degree under the supervision of *Professor S. Ruan*, has an instructor position at Idaho State University, USA.

Dale Garraway (PhD. 2002) has been teaching at Colby College, Maine for the past academic year.

Rebecca Culshaw (PhD. 2002) has accepted a position at Clarke College, Dubuque, Iowa for the coming year.

Patricia Moorhead (PhD. 2002) will be taking a position at Department of National Defence, Ottawa this October.

Rolf Jeltsch was a PDF at Dalhousie with *Professor Hermann Brunner*, now at ETH in Zurich. He has been President of the European Mathematical Society 1999-2002.

Sung Je Cho (PhD. 1978) is Professor of Mathematics Education at the Seoul National University in Korea. He chaired the organizing committee for the International Mathematics Olympiad IMO 2000, which took place in Seoul. Currently he is working on problems in math education in Korea.

Josh Knauer is spending the summer at Simon Fraser University, working with *Professor Peter Borwein*. He will be back in September for his final year.

In February we had a surprise visit by *Songping Zhou*, who received his PhD. here in 1992 under *Professor Peter Borwein*. He is now Dean of the newly established Faculty of Science at Ningbo University in China.

Random Thoughts of A Recent StatCan Recruit

When people think of Statistics Canada, they think of the unemployment rate, the inflation rate and the census. But what's it like on the "inside"? In particular, what's it like for someone with a statistics degree, fresh out of university, when he leaves academia for what StatCan old timers still refer to affectionately as *the Bureau*?

I have worked at Statistics Canada for little over a year and although it might be argued that I haven't been here long enough to have a really informed opinion, I do believe that this is a great place to work. Sure, the pay may not be as good as if I was in a private company in the United States but the environment at Statistics Canada has a lot to offer.

To begin, let me say that I work on the International Travel Survey in the Education, Culture and Tourism Section of the Household Survey Methods Division in the Methodology Branch of Statistics Canada. The fact that this sort of hierarchy exists is, in fact, very beneficial to new employees as it allows them to work with more experienced statisticians who will aid in their development. Most people with statistics degrees work in one of the three methodology divisions, and are therefore known as methodologists. Within Statistics Canada, the term *statistician* is often used to refer to subject-matter experts, who typically have degrees in economics and not in statistics!

The work of methodologists is highly varied and covers many areas including survey design, sample allocation, weighting, variance estimation and almost every other aspect of survey sampling. Methodologists generally work as part of a multidisciplinary team, working with subject matter specialists and systems specialists. Because the job of a methodologist is so varied, it is almost impossible to provide a simple summary of what we do here at Statistics Canada.

Statistics Canada has been hiring a lot of new recruits in recent years and accordingly has developed committees and events to make the transition to work easier. Each methodology division has its own welcoming committee to greet newcomers and to show them the ropes. There

are also special seminars for new methodologists and many social events, which allow new employees to meet each other and develop friendships. There is also an Inter-Program Recruit Committee that organizes monthly events for new recruits from all disciplines. This allows you to meet people in other disciplines as well as other methodologists.

All of these organized events are above and beyond the usual ways you make friends, such as eating in the cafeteria, going to the gym at lunch and meeting people on your floor. Statistics Canada has a relatively informal working environment that makes it easy to talk to your co-workers and supervisors.

Statistics Canada places great emphasis on training new employees with courses available on practically every subject that you may use over the course of your career. As a recent graduate, it feels good to have my employer paying to educate me rather than me paying to get an education so I can be employed. One course that I particularly enjoyed is the Survey Skills Development Course. During this six-week course, the participants are responsible for almost every aspect of a real survey, from sample design to data collection to the dissemination of results. This allows you to see every part of a survey from start to finish and provides exposure to many areas of survey sampling.

Since Statistics Canada is an agency of the federal government, the work environment is bilingual. Senior methodologists (and anyone else with supervisory responsibilities) are expected to be bilingual so that work can be done in either official language. Statistics Canada has language training facilities on site, which makes it easy to take classes in your second language. Since the French (or English) classes can be taken, at least in part, during working hours, the fact that you are expected to become bilingual is less of an impediment to career advancement than I feared it would be. To be honest, the language classes often provide a nice break from your regular working day!

Having worked for just over a year has given me the opportunity to look back on my university career and try to assess how well my education in statistics has prepared me for the real world (or at least my part of it). I obtained a Master's degree in Statistics at Dalhousie University (a great school!) and I really do believe that I developed a good understanding of the fundamentals of statistics and at least a basic understanding of the more complex statistical methods. My university training has left me with two things that I think are essential to being a good statistician: a broad enough knowledge base to know what methodology should be used and the mathematical and technical ability to use the methodology once I have examined it. I no longer remember all the formulas and the exact techniques

behind logistic regression, time series analysis, survival analysis, etc., but I have a good idea of when they should be used and what they can do. More importantly, if you give me a couple of hours with one of my textbooks I will be able to use these methods on a basic level.

Having said what my education has done for me, I should also mention what I think a university education leaves out that is also essential to being a good statistician: knowledge of how to deal with "real-world" problems. Based on discussions I've had with other recent StatCan recruits, this seems to be a Canada-wide phenomenon. In university, almost all problems began with the words "Suppose you have a random sample of X" or something along those lines, with little discussion of how the sample was obtained. When I left university I had a good idea of what was *not* a random sample, but not a good idea of how to get a sample that was sufficiently representative. I knew why selecting every fifth person walking down a street is not a good random sample, but I didn't know how to get a random sample of people in a city when there were all the "real-world" problems to deal with. As for non-response and how to deal with it, it was rarely mentioned.

This lack of exposure to real-world problems did ensure that my first few weeks at work were interesting, as I learned about imputation, got an idea of the sheer complexity of a large survey and generally began to learn how things worked outside of the classroom setting. I think it would be beneficial for students if the university arranged to have practicing statisticians do a presentation on some of the problems they encountered and how they were dealt with, with an emphasis on the practical side. This will have at least as much benefit for future statisticians as a seminar on someone's new method to estimate the kurtosis of a non-normal distribution, which may only be of interest to a few specialists.

Statistics Canada is a great place to work for people with an interest in statistics. With the diversity of subject-matter areas covered by Statistics Canada, there are always opportunities for growth and change within the agency. Statistics Canada is one of the largest employers of statisticians in the world and the most highly respected government statistical agency, bar none. Where better to work if you want a career in statistics?

Martin Perry, Statistics Canada
Graduated October 2000 (M.Sc. Dal)
Reprinted from **Liaison** Vol. 16, No.2
May 2002

FACULTY NEWS

It is a cliché to remark on how quickly the years roll by. Yet, that seems to be the only response when faced with surprising anniversaries. This summer marks the twentieth anniversary of *Michael Edelstein's* retirement from the department. Michael came to Halifax and Dalhousie in 1964. He made a huge contribution to the life of the department and especially to its research life. He supervised the first Ph.D. in Math at Dal (Raymond Holmes) and many others subsequently. He ran the functional analysis seminar but, more importantly, was always suggesting problems to students and faculty alike.

To mark his birthday earlier this year many former students and colleagues were asked to send him greetings. A largish package was put together and was received with much appreciation.

Michael is now living in Vancouver close to his daughter, Leah. We wish them both well.

* * * * *

Congratulations to *Jason Brown* who has been promoted to Full Professor effective July 1, 2002.

Congratulations to *Richard Nowakowski* who has accepted a further four-year term as Department Chair.

Shigui Ruan will be on Leave of Absence from Dalhousie University starting July 1, 2002. *Dr. Ruan* will be at the University of Miami during this time.

Congratulations to *Rob Milson* on his reappointment as Assistant Professor.

Congratulations to *Hong Gu* on her appointment as Assistant Professor.

Shigui Ruan had a fruitful sabbatical year at Vanderbilt University in Nashville. He not only enjoyed the music and weather there but also had been invited to give colloquium/seminar talks at more than 10 universities including Georgia Tech, NC State, UT-San Antonio, Univ of Miami, Arizona State, Brigham Young (one doesn't need to be a Mormon to give a talk there), Vanderbilt, Auburn, UA-Huntsville, UT-Knoxville, Memphis, etc.

In November, an afternoon-conference in number theory took place in our department. The following 7 speakers talked about their latest research:

- Peter Borwein* (Simon Fraser)
- Karl Dilcher* (Dalhousie)
- Ron Ferguson* (Simon Fraser)
- Jeff Hooper* (Acadia)
- Josh Knauer* (Dalhousie)

Joerg Richstein (Dalhousie)
Ping Zhou (St.F.X.)

Joerg Richstein after successful completion of a Killam PDF for two years has returned to the University of Giessen in Germany.

We're happy to welcome back *Heydar Radjavi* after spending two years at the University of New Hampshire.

Tony (A.C. Thompson) retired ... and is now President of the Nova Scotia Lighthouse Preservation Society.

It may not be widely known that the website of the international "Fibonacci Association" is maintained in this department (by *Karl Dilcher*); this includes the conference website of the upcoming International Conference on Fibonacci Numbers and Applications, June 24 - 28, in Flagstaff, Arizona. (See <http://www.mathstat.dal.ca/fibonacci/>).

Richard Nowakowski (RJN) was busy analyzing games this last year.

RJN and *Erik Demaine* (BSc Dal 1995, Univ of Waterloo, now Assistant Professor at MIT) together with R. Fleischer (HKUST, Hong Kong) and A. Fraenkel (Weizmann Institute of Science, Israel), organized a Workshop at Dagstuhl, Germany on Algorithmic Combinatorial Game Theory for Feb 17 to Feb. 22, 2002. 45 people took part from Europe and North America. See <http://www.dagstuhl.de/02081/> for a description and <http://www.dagstuhl.de/Seminars/Photographs/02081.s.jpg> for a photo of the participants.

More Games of No Chance, Cambridge University Press (2002), edited by R. Nowakowski, (also on combinatorial games) was published this year.

RJN also organized "Games At Dal" in August 2001. This consisted of a workshop (M. Albert, Univ. of Otago, New Zealand, J. P. Grossman, MIT, D. Horrocks, UPEI, and RJN) and a day long conference which had a mix of talks by the workshop participants and undergraduate students from the maritimes. The game of "Clobber" was invented at this workshop. This game became a big hit at the Dagstuhl workshop. See <http://lunen.gac.edu/~wolfe/games/clobber/> for the rules.

RJN is busy organizing "Games at Dal II" for August 2002 which will follow the same format. The Workshop participants will be M. Albert, Univ. of Otago, New Zealand, E. Demaine, MIT, J.P. Grossman, MIT, D. Horrocks, UPEI, D. Wolfe, Gustavus Adolphus Coll. and RJN.

In February 2002 *Keith Thompson* was awarded a Canada Research Chair in Marine Prediction and Environmental Statistics. Keith Thompson will use his expertise in physically-based modelling and applied statistics to look at a number of environmental problems. He is presently developing forecast models for the deep ocean and shelf seas and using them, for example, to assess how flooding risk will change as global sea level continues to rise over the next century and storminess changes. An exciting aspect of the chair is the establishment of a new group in environmental statistics. In addition to adding two new junior faculty to our department, this initiative will provide opportunities for graduate students to work at the interface of statistics and a number of other disciplines including atmospheric science, oceanography and environmental science.

Many professors and others with Dalhousie connections will be presenting talks at the CMS Summer Meetings in Quebec, June 2002.

The following current Dalhousie professors appear as active participants on the poster for the meetings.

Andrea Fraser
Bob Paré
Dorette Pronk
Jeanette Janssen
Karl Dilcher
Shigui Ruan
Richard J. Wood

The following professors with Dalhousie Mathematics Department connections are also listed on the same poster.

Robert Dawson, former undergraduate (B.Sc.)
Dale Garraway, Ph.D.
Fred Linton, former Killam Senior Fellow
Wendy MacCaull, former undergraduate (B.Sc.)
Susan Niefield, former Post Doctoral Fellow
Bob Raphael, former faculty
Phil Scott, former faculty
David Bradley, former Post Doctoral Fellow
Colin Ingalls, former undergraduate (B.Sc.)

Leah Edelstein (B.Sc. Dal) has been chosen to give the prestigious CMS Krieger-Nelson Lecture at the CMS Summer Meeting for 2003.

Sabbatical Leave

The following professors will be on sabbatical leave during the following terms mentioned:

<i>Jason Brown</i>	July 1, 2002 - December 31, 2002
<i>C.C.A. Sastri</i>	July 1, 2002 - June 30, 2003
<i>Keith Johnson</i>	July 1, 2002 - June 30, 2003
<i>Chris Field</i>	July 1, 2002 - June 30, 2003
<i>Alan Coley</i>	January 1, 2003 - June 30, 2003

COMPETITION NEWS

In early December the Putnam Exam was written by seven of our students, this year jointly (but as separate teams) with students from St. Mary's.

Our top contestants were *John Klapstein*, *James Michael*, and *Adam Clay*, who ranked in the upper 20-30% of the almost 3000 students who wrote the exam throughout Canada and the U.S. Weekly problem sessions had been held in the Fall, led by *Richard Hoshino* and *Karl Dilcher*.

GRADUATE STUDENT SOCIETY NEWS

GRAD Events 2001/2002

The Math/Stat Graduate Student Society had another year of successful social activities. The weekly department coffee hour was as popular as ever. This year we made the running of coffee hour a communal effort, soliciting volunteers each week. Many thanks to the people who donated their time to put the coffee on or pick up the munchies on their way to work.

Our social calendar of this past year also included four main events. Thanksgiving was celebrated with a delicious international cuisine potluck dinner. The annual Christmas party was held in the Chase Building this year and was a great success. In mid-February, we honoured the Chinese New Year, Valentine's Day, Shrove Tuesday and Flag Day with an all-in-one pizza party. In early April we hosted a post-Easter party with a special Mad Hatter theme. Our lucky winners in the mad hat contest were *Jean Thiébaux*, *John Metlej* and *Steve Larocque*. There were many honourable mentions; thanks to all those who participated in the fun.

It has been an honour representing graduate student interests in this department this past year and the current executive wishes everyone a pleasant and enjoyable summer.

Nancy Clarke, President
Tara Taylor, Vice-President
Patricia Moorhead, Treasurer/Secretary
Richard Hoshino, Department Liaison

UNDERGRADUATE STUDENT SOCIETY NEWS

MASS Events 2001/2002

2001/2002 was another successful year for the Undergraduate Math and Stats Society. All of the events put on by MASS were well attended and we achieved our goal of bringing undergraduate math and stats students together.

We kicked things off in September with the first of many Aftermaths. This year the semi-regular Friday afternoon casual meetings were very popular with both students and faculty. Also in September MASS had its first outdoor BBQ. We increased awareness of our society and its events by selling hamburgers and hotdogs to passersby outside the Chase building.

Our hard work paid off with the September pub-crawl that was the most successful in the history of MASS. More than 70 undergraduate and graduate students went out together on a tour of Halifax's downtown bars. For the second pub-crawl in February, MASS teamed up with the Computer Science Undergraduate Society to hold an even larger event. A highlight of the evening was the coincidence of the Math/Stats/CS, Mechanical/Civil Engineering and Psychology pub-crawls at the T-Room. Everyone had a good time. A highlight of November was our Games Night. *Dr. Nowakowski* taught us to play Dots-and-Boxes while everyone enjoyed free pizza. Hopefully we will be able to GO to more next year.

Our annual Holiday Dinner was held at the Great Wall restaurant on Bedford Row in downtown Halifax. The food was excellent and plentiful. There was a good mix of students and faculty, with enjoyable conversations ensuing.

Everyone's favorite event was the Wine and Cheese evenings held in November and April. The colloquium room was transformed into an intimate and elegant soiree with tasteful decorations. The party helped students and faculty to enjoy an excellent evening of mingling. During the second Wine and Cheese in April, MASS gave out its 2nd annual Motivator of the Year award. This year's deserving recipient was *Dr. Karl Dilcher*. In addition to a new mason jar of pencils, Dr. Dilcher received a plaque with the following inscription:

*The 2001-2002 M.A.S.S. Award for Motivation
is presented with appreciation to
Karl Dilcher*

for his contribution to undergraduate achievement. The undergraduates wish to thank Dr. Dilcher for his hard work in organizing the problem solving training

sessions, and for introducing Cryptography to the curriculum this year. In addition to challenging his students, Dr. Dilcher teaches each course with his unique sense of humor, which has helped to make him a very likeable and well-respected lecturer. Dr. Dilcher's enthusiasm and willingness to invest a great deal of effort encourages his students to do the same.

The year ended with MASS' annual general meeting. We all came together to thank this year's excellent council: *James Michael* (President), *Paul Sheridan* (Vice-President), *Johnny Metlej* (Treasurer) and *Jamie Carter* (Secretary). We also elected our (mostly) new executive for 2002-2003. They are: *Joshua Knauer* (President), *Joshua Macdonald* (Vice-President), *Johnny Metlej* (Treasurer) and *Garret MacLean* (Secretary). Congratulations to both our incoming and outgoing councils!

This was an excellent year for MASS. Next year we will continue to bring together math and statistics students with our tradition of high quality fun events.

CONFERENCES

Hong Gu and *David Hamilton* attended the 2002 meeting of the International Biometric Society, Eastern North American Region, in Arlington, Virginia, March 17-20, where Hong Gu presented a talk titled "Detecting Change in Visual Field Data".

Karl Dilcher attended the Czech and Slovak Conference on Number Theory in September 2001 in the Czech Republic and the 2002 Conference of the Canadian Number Theory Association in Montreal (May 2002).

Ray Spiteri, *Pat Keast* and *Paul Muir*, (professor at SMU and adjunct professor at DAL) organized a session on Numerical Analysis/Scientific Computing/Computational Applied Mathematics, at the APICS meeting in St. Francis Xavier University, October 20-21. This attracted speakers from Dalhousie, Saint Mary's, Memorial, and the University of New Brunswick. A one-day symposium is planned at Dalhousie on May 31 with principal speaker Professor Larry Shampine of Southern Methodist University.

Ray Spiteri attended the following conferences (where he also gave presentations):

"Modelling and Scientific Computing Conference 2001", University of New Brunswick, Fredericton, New Brunswick, September 29-30, 2001, New Optimal High-Order Strong-Stability-Preserving Time Discretization Methods.

Canadian Spring Conference on Behaviour and Brain, Fernie, British Columbia, February 21 - 23, 2002,

Computational Modelling of Elevated-Plus-Maze Behaviour.

He also attended a workshop titled, "PDE Methods for Pricing Path-Dependent Options" at the Fields Institute in Toronto, February 25-26, 2002.

H. Jean Thiébaux attended and presented an invited paper at the 2002 Interface Conference, 17- 20 April 2002, Montreal, PQ, "A new high-resolution blended real-time global sea surface temperature analysis".

Shigui Ruan presented invited talks at several conferences including the 22nd CAIMS annual meeting in Victoria (June), the International Conference on Dynamical Systems and ODE in Beijing, China (June), the International Conference on Dynamical Systems with Applications in Lhasa, China (July, had some unforgettable experiences in Tibet), the 970th AMS meeting in Chattanooga, USA (October), and the 2001 CMS winter meeting in Toronto (December). He also gave an invited plenary talk in the workshop on "Immunology, Ecology and Epidemiology" held at the Isaac Newton Institute, Cambridge, UK (December) and was very much impressed by the fact that there are blackboards in the Institute's washrooms.

The International Workshop on "Dynamical Systems and their Applications to Biology", organized by *S. Ruan* (Dal), *G. Wolkowicz* (McMaster) and *J. Wu* (York) was held in Cape Breton, Canada, August 2-8, 2001. There were 45 participants came from Austria, Canada, China, Japan, Singapore, Spain, Taiwan, UK, and USA, among them there were 14 PhDs and graduate students. The workshop was financially supported by the National Program Committee of the Institute (CRM, Fields, and PIMS) and Dalhousie University (Vice President for Research, Research Service and Graduate Studies). The proceedings of the workshop is being published in the Fields Institute Communications series.

Chris Field attended and organized the International Conference on Robust Statistics in May, 2002.

Keith Thompson is a member of the Coastal Ocean Observations Panel and recently attended their third meeting in Hanoi, Vietnam from 15-18 January, 2002.

Tony Thompson attended and gave a talk at the International Conference on Stochastic Geometry, Convex Bodies, Empirical Measures and Applications held in Tropes, Italy, 24-29 September 2001. He also gave a talk at the Catholic University of Milan.

The Dalhousie Math/Stats Education Study Group is a collective of fifteen faculty members and graduate students. The group has met once every two weeks,

since the start of the new year. The purpose of the study group is to have a forum to discuss, debate, and share teaching ideas. Each meeting consists of a twenty minute presentation, on a particular topic, followed by a forty minute discussion. In addition to the meetings, participants are regularly given handouts and journal articles on mathematics pedagogy.

In the past four months, the following presentations have been made:

Eleven Teaching Ideas for Your Math Classroom (*Richard Hoshino*, Dalhousie)

Perspectives on the Classroom Experience (*Paul Muir*, SMU)

Communication and the Hidden Curriculum (*Pierre Stevens*, Dalhousie)

Using Multimedia and Technology (*Jason Brown*, Dalhousie)

Quizzing Techniques in Introductory Math Classes (*Suzanne Seager*, MSVU)

Teaching Summer Classes (*Patricia Moorhead*, Dalhousie)

The Seven Habits of Highly Effective Teachers (*Richard Hoshino*, Dalhousie)

Two of our study group members presented at the 6th Annual Dalhousie Conference on University Teaching and Learning on May 7 - 9, 2002.

Jason Brown - "Don't Have the Tail Wag the Dog – Let Pedagogy Drive the Technology"

Richard Hoshino - "Understanding the Learner"

Special thanks go to *Paul Muir* of St. Mary's University for graciously hosting the study group during the Dalhousie Faculty strike in March.

For more information regarding the study group, please see <http://www.msccs.dal.ca/~hoshino/studygroup.html>

SUMMER CAMPS

Summer Math Camp for Black Students

Once again, the department, in cooperation with the Black Teachers Association of Nova Scotia (BEA), will hold a week-long math camp aimed at black students. It will be held during the week of July 8th under the

direction of *Dr. R.P. Gupta*. Its purpose is to identify and encourage mathematical talent among young Black Nova Scotians. The teaching will be done by teams of faculty members as well as school teachers. Both Dalhousie and the BEA continue to support the camp financially, but now there is a new sponsor, NSERC/PromoScience, which has awarded the camp a three-year grant. It should be exciting and fun!

CMS-DALHOUSIE Math Camp

A week-long math camp for gifted high school students from Nova Scotia and Prince Edward Island will be held by the department during the week of July 15th. The camp is sponsored by the Canadian Mathematical Society, with support from various sources including Dalhousie, ESSO, and NSERC/PromoScience. The aim is to identify, stimulate and encourage mathematical talent in this region. Teaching will be carried out by faculty members from Dalhousie and St. Mary's Universities as well as by *Richard Hoshino*, a Dalhousie graduate student expert at problem-solving. This should be exciting!

This will be the third such camp. The organizers are *Chelluri Sastri* and *Suraj Sikka*, who conducted the two previous camps as well.

LONG-TERM VISITORS TO DEPARTMENT

Roustam Zalaletdinov January 1 - October 1, 2002

Vojtech Pravda January 8 - May 1, 2002

Alena Pravdova January 8 - May 1, 2002

Jean Thiébaux, a former Professor in the Department and recently retired from the National Centers for Environmental Prediction, was a five-month visitor during January through May. During this visit, Dr. Thiébaux taught a special graduate course in Analysis of Spatial Data to students from Math and Stat, Oceanography and Biology, plus one person from a private oceanographic research company. The semester concluded with a seminar "Techniques and Applications of Spatial Analysis for Stochastic Fields" given jointly by the students who had completed projects on their special topics of choice, including:

- EOF (Principal Component) Analysis
- Neural Networks
- Kriging Analysis
- Generalized Kalman Filtering (Optimal Statistical Objective) Analysis
- Alternative techniques for analyzing abundance in time and space

In addition to teaching, Dr. Thiébaux has been engaged in a collaborative research project for Environment Canada. This project has examined statistical features of forecast winds and pressures of the Maritime Atlantic Region, through comparisons of forecast values with those of the verifying analyses and with observation reports of the moored buoys in the region.

GRANTS Research Grants - 2002

<i>Brown, J.</i>	NSERC	23,100
<i>Clements, J.</i>	NSERC	23,188
<i>Coley, A.</i>	NSERC Equip.	25,200 13,500
<i>Dilcher, K.</i>	NSERC	15,000
<i>Field, C.A.</i>	NSERC	34,650
<i>Fraser, A.</i>	NSERC	12,342
<i>Grunenfelder, L.</i>	NSERC	8,085
<i>Gu, H.</i>	NSERC	15,500
<i>Gupta, R.P.</i>	NSERC	11,550
<i>Hamilton, D.</i>	NSERC	16,000
<i>Janssen, J.</i>	NSERC	17,325
<i>Johnson, K.</i>	NSERC	9,240
<i>Keast, P.</i>	NSERC	17,000
<i>Milson, R.</i>	NSERC	14,000
<i>Moriarty, K.</i>	NSERC	15,000
<i>Nowakowski, R.</i>	NSERC MITACS	17,000 17,000
<i>Paré, R.</i>	NSERC	10,395
<i>Pronk, D.</i>	NSERC	13,000
<i>Radjavi, H.</i>	NSERC	18,000
<i>Ruan, S.</i>	NSERC MITACS	14,700 13,500
<i>Smith, B.</i>	NSERC	45,623 16,275
<i>Spiteri, R.</i>	NSERC	3,859
<i>Susko, E.</i>	NSERC	12,600

<i>Tan, K.K.</i>	NSERC	7,000
<i>Thompson, A.</i>	NSERC	7,000
<i>Thompson, K.</i>	PWGSC contract	57,534
	PWGSC contract	15,384
	NSERC	30,000
	NSERC	7,500
<i>Wood, R.J.</i>	NSERC	12,000

31.01.2002 *Ransom A. Myers, Dalhousie: The Simultaneous Analysis of Many Short, Noisy, Autocorrelated, Cross-correlated Multi-variate Time Series Using Nonlinear Random Effects Meta-analysis; Perhaps the Only Way to Resolve Crucial Questions in Community Ecology.*

07.02.2002 *Yong Song Qin and Bruce Smith, Dalhousie: Test for Homogeneity in Normal Mixtures with Unknown Means and Variances.*

**STATISTICS SEMINARS
2001/2002**

DATE	TITLE AND SPEAKER
27.08.2001	<i>Xiaofei Shi, Confidence Regions for Phylogenetic Trees.</i>
04.09.2001	<i>Dan Kehler, Dalhousie: Bias in Spawner-Recruitment Functions.</i>
13.09.2001	<i>Bo Lin, Dalhousie: Maximum Likelihood Estimation of Phylogenetic Trees.</i>
20.09.2001	<i>Christopher Field, Dalhousie: Robust Analysis of Bird Data.</i>
27.09.2001	<i>Hal Whitehead, Dalhousie: Analysis of animal movement using opportunistic individual-identifications.</i>
04.10.2001	<i>George Gabor, Dalhousie: What is the Question? Sampling from a Finite Population.</i>
18.10.2001	<i>Marc G. Genton, North Carolina State: Robust Indirect Inference.</i>
25.10.2001	<i>Marc G. Genton, North Carolina State: Robustness for Correlated Observations.</i>
01.11.2001	<i>Tony Almudevar, Acadia: A Stochastic Contraction Mapping Theorem.</i>
08.11.2001	<i>Donald Fraser, Toronto: Some aspects of recent likelihood inference methods.</i>
15.11.2001	<i>Christopher Field, Dalhousie: Confidence Regions for Phylogenetic Trees.</i>
17.12.2001	<i>Mei Yang, Dalhousie: Model Selection for GARCH Models using AIC and BIC.</i>

14.02.2002 *Connie Stewart, Dalhousie: Estimating the Diet of Seals Using Fatty Acid Signatures.*

01.03.2002 *Stephan Morgenthaler, Swiss Federal Institute of Technology Lausanne, Switzerland: Two-way plots.*

04.04.2002 *Stephen J. Smith, Invertebrate Fisheries Division, Bedford Institute of Oceanography: Modelling the population dynamics of a scallop population.*

11.04.2002 *Maureen Tingley, New Brunswick, Fredericton: Detection of patterns in noisy time series.*

18.04.2002 *Bashir Khan, St. Mary's: Improved estimation of the coefficient vector in a regression model.*

25.04.2002 *Tessema Astatkie, Nova Scotia Agricultural College: Testing for Trend in Variability of Climate Data: Measures and Temporal Aggregation with Applications to Canadian Data.*

26.04.2002 *Michele Millar, Dalhousie: Breeding Value Estimation and Biodiversity Considerations in Forest Genetics.*

09.05.2002 *The Participants in STAT 5300, Dalhousie: Techniques and Applications of Spatial Analysis for Stochastic Fields.*

**MATHEMATICS SEMINARS
2001/2002**

DATE	TITLE AND SPEAKER
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- 29.11.2001 *Svetlana Ostrovskaya*, Centre for Intelligent Machines and Department of Mechanical Engineering, McGill: Dynamics of Reconfigurable Nonholonomic Systems
- 01.2002 *Renzo Piccinini*, Milan: Algebraic Topology Lectures. (Seminar series every Tuesdays and Thursdays in January 2002.
- 04.02.2002 *Roustam Zalaletdinov*, Dalhousie, NATO Fellow, ICRA, Dept of Physics, University of Rome "La Sapienza", Rome, Dept of Theoretical Physics, Inst. of Nuclear Physics, Uzbek Acad. Sci., Tashkent, Faculty of Physics, University of Tashkent, Tashkent: Volume Averages on Differentiable Manifolds with a Volume n-form.
- 11.02.2002 *Robert Milson*, Dalhousie: Chevalley's Theorem and Reflection Quotients of Euclidean Space.
- 17.04.2002 *Dale Rolfsen*, UBC: Solving equations in the Temperley-Lieb Algebras, with application to knot theory.
- 18.04.2002 *Dale Rolfsen*, UBC: Knots and polynomials.

AN ANECDOTE AND A PUZZLE

Edited by
Dr. S. Swaminathan

Let me tell you how at one time the famous mathematician *Euclid* became a physician. It was during a vacation, which I spent in Prague as I most always did, when I was attacked by an illness never before experienced, which manifested itself in chilliness and painful weariness of the whole body. In order to ease my condition I took up *Euclid's Elements* and read for the first time his doctrine of ratio, which I found treated there in a manner entirely new to me. The ingenuity displayed in Euclid's presentation filled me with such vivid pleasure, that forthwith I felt as well as ever.

Bernard Bolzano, *Selbstbiographie* (Wien 1875), p.20

Seven Up.

[copy the figure here] 

These seven cups have to be turned the right way up, but each move must consist of inverting three at a time. You can choose the three from anywhere in the line, they need not for example be adjacent, and a cup may be inverted again on the next, and so on.

How many moves are necessary? How many moves would you need if the rules specified that four cups be inverted at each turn?

[The solution will be posted in the Department website]

CHASE REPORT

Is published for alumni and friends of the Department of Mathematics & Statistics, Dalhousie University.

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