News@Math&Stat

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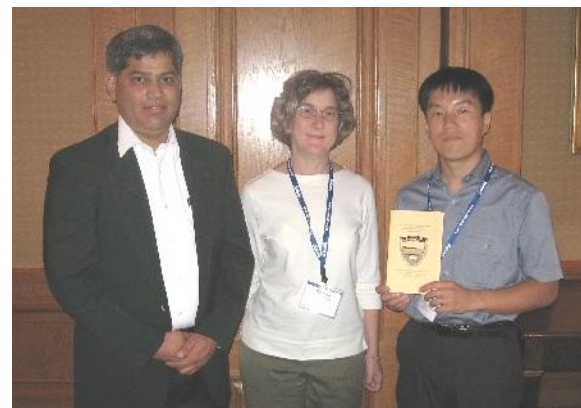UNIVERSITY
IN MARYLAND

Welcome by Department Chair Nagaraj K. Neerchal

The tradition of publishing the department's newsletter _News@Math&Stat_ has entered the second year. We had a busy and successful 2006-07. Our department went through the seven yearly Academic Program Review, we had two very well attended conferences, one honoring **Prof. Thomas I. Seidman** (see the Spring 2007 _News@Math&Stat_) and the _Probability and Statisics Day_ (reported in this _News@Math&Stat_). A couple of exciting events are also planned for this year. We are partnering with the publisher McGraw Hill to host the event "Undergraduate Years and Beyond" on October 20, 2007 (www.umbc.edu/circ/hosting/UMBCMCGHWorkshop2007). The workshop features faculty research posters, "technology in the classroom" presentations, and a panel discussion on "Careers in Mathematics and Statistics". We are also planning another _Probability and Statistics Day_ on April 28, 2008. Please check the department website periodically for updates. Several readers sent acknowledgments and congratulatory notes as responses to items in our previous newsletters. We hope to hear from more of you.

National Honorary Society for Statistics Initiated

Mu Sigma Rho is the national honorary society for statistics. Its purpose is the promotion and encouragement of scholarly activity in statistics, and the recognition of outstanding achievement among the students and instructional staff in eligible academic institutions. The UMBC chapter was initiated in the Mu Sigma Rho council meeting at the Joint Statistical Meeting in August 2007. Shown is the National President of Mu Sigma Rho, **Dr. Marcia Gumpertz**, Professor of Statistics from North Carolina State University, with **Dr. Nagaraj Neerchal** and the chapter advisor **Dr. Taeryon Choi** at the initial ceremony.

News from the Graduate Program by Graduate Director Muddappa S. Gowda

Greetings from the Graduate Program Director! This year is a banner year for graduations. So far we had 2 students in Mathematics and 1 in Statistics receiving their Ph.D. and 8 in Mathematics and 7 in Statistics receiving their M.S. See www.math.umbc.edu/resources/alumni.htm for a complete list. We congratulate our May 2007 and August 2007 PhD graduates **Olena Shevchenko** (Advisor Dr. Guler), **Ravi Siddani** (Dr. Roy), and **Zhibin Sun** (Dr. Gobbert and Dr. Andrew Tangborn (JCET)). We wish them well in their future endeavors. We also congratulate all M.S. graduates. Many of them will be continuing their graduate studies at UMBC. In December 2007, **Feng Li** (Dr. Rukhin) will be receiving his PhD in Statistics. We expect 2 or more students to receive their masters. I am pleased to welcome all new graduate students. The following students have joined our department with full support: **Deepak Ayyala** (from India), **Hamza Bahadur** (USA), **Ashley Deluca** (USA), **Neeraj Sharma** (USA), **Caroline Smith** (USA), **Guan Wang** (China), **Nicole Wood** (USA), **Jin Xia** (China), **Mathangi Gopalakrishnan** (USA).
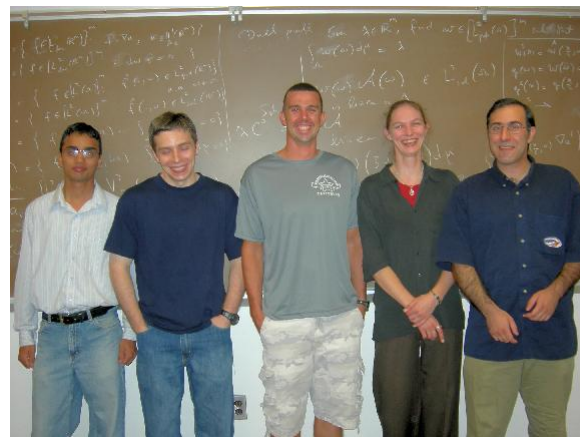
News from the Undergraduate Program by Undergraduate Coordinator Yen-Mow Lynn

In the May 2007 commencement, 33 bachelor degrees in Mathematics were awarded, including 5 dual degrees and 2 double majors. In addition, 12 minors in Mathematics and 2 in Statistics were awarded. For the academic year in total, 52 majors (including 10 secondary majors) and 12 minors in Mathematics and 1 major and 2 minors in Statistics received their degrees. Over the last year, the department has initiated several educational initiatives. **Dr. Matthias Gobbert** first offered a hybrid version of MATH 221 Introduction to Linear Algebra in Summer 2006 and 2007, in which approximately one third of the instruction was offered online while the other two thirds were face-to-face. In Fall 2007, **Ms. Bonnie Kegan** offers a hybrid version of STAT 121 Introduction to Statistics for Social Sciences, which consists of approximately three quarters of the instruction presented online while the remaining quarter are face-to-face. All quizzes and examinations in these courses are given in a face-to-face setting. Depending on the availability of qualified instructors, the department is interested in further exploring the initiation of hybrid versions of other courses usually offered in a traditional setting. Starting with Fall 2007, the department adopted the Early Transcendental version of the Calculus textbook in use. By covering the topics on inverse functions, inverse trigonometric functions, exponential and logarithmic functions, hyperbolic functions in MATH 151, students from the Biological Sciences, Economics, Financial Economics, Information Systems may now need to take only one semester of Calculus to meet their needs. The topics on antiderivatives, definite integrals and their applications are now covered in MATH 152. The change has no effect on students in Mathematics, Chemistry, Physics, and Engineering, since they normally take both Calculus courses. The course MATH 251 on Multivariable Calculus is not affected by this change.

News from the MSGSA by President Justin Newcomer and Vice President Alen Agheksanterian

The Mathematics and Statistics Graduate Student Association (MSGSA) has been recognized as a UMBC community since Spring 2007. The main purposes of the MSGSA are to represent the graduate students in the mathematics and statistics programs and provide an interface between students and the adminstration in the department. Some of the new plans for the current academic year include the peer mentoring program (in conjunction with the GSA) and planning of social events such as a group visits of museums in DC or Baltimore. The officers for Fall 2007 are **Justin Newcomer** (President), **Alen Agheksanterian** (Vice President and GSA Senator for Mathematics), **Martin Klein** (Secretary), **Elizabeth Stanwyck** (Treasurer), and **Gaurav Sharma** (GSA Senator for Statistics).

News from the Council of Majors and Pi Mu Epsilon by President Kristel Ehrhardt

Pi Mu Epsilon and the Council of Majors are looking forward to a wonderful school year; full of exciting activities, both alone and with the Physics and Philosophy Departments. Last spring, Pi Mu Epsilon inducted eighteen new members in a ceremony attended by friends and family. In addition, we recognized three outstanding graduating seniors and presented an Alumni Association Award. This year, the undergraduates have a lounge! Please visit MP012A to take a look. We hope to have a productive year, full of fun and mathematics!

UMBC Probability and Statistics Day 2007 by Conference Chair Bimal Sinha

This year's *Probability and Statistics Day* Conference on April 28, 2007 was an undeniable success, with a record turnout of 95 participants representing a variety of universities, colleges, and institutions. The all-day conference featured keynote speeches by **David Banks** (Duke University) and **Pranab K. Sen** (University of North Carolina, Chapel Hill), as well as many other notable presentations. Parallel sessions were held, including special invited sessions, a technical session, and graduate student presentations. The conference sessions were held in two rooms in the Information Technology and Engineering Building at UMBC, with the poster session taking advantage of the foyer of the building.

The conference featured 27 distinguished speakers representing a wide range of expertise. There were two plenary sessions (featuring such topics as "Sequential Prediction Bounds for Identifying Differentially Expressed Genes in Replicated Microarray Experiments" by **Dulal Bhaumik**, University of Illinois at Chicago and "Upper Level Set Scan Statistic for Detection of Disease and Crime Hotspots" by **Reza Modarres**, George Washington University), and two invited sessions, as well as a technical session. As a special item, **Anindya Roy** organized a session featuring star faculty from outside of the fields of Mathematics and Statistics (**Shari Waldstein** from Psychology, **Tulay Adali** from Computer Science and Electrical Engineering, and **Prasun Kundu** from the Joint Center for Earth Systems Technology (JCET) at UMBC), who showcased the ongoing interdisciplinary research at UMBC.

Unique among conferences in its inclusion of graduate student presentations, the *Probability and Statistics Day* featured 12 student papers and 10 student poster presentations. Awards were given to the best three presentations in each group, including **Justin Newcomer** and **Aarti Gupta** from our department. Some of the presentations by graduate students were based on the capstone projects by students in the Biostatistics track (a joint venture with UMBC and UMB) and on interdisciplinary projects from CIRC (Center for Interdisciplinary Research and Consulting: www.umbc.edu/circ). Graduate students had an exceptional opportunity to exhibit their research and receive feedback from successful researchers in the field.

The first *Probability and Statistics Day* was held at Johns Hopkins University 30 years ago, organized by our own colleague, **Professor Arthur Pittenger**, and assisted by JHU and the US Naval Academy. A total of 26 universities and agencies were represented this year, including NSA, NCHS, EPA, NIH, FDA, GlaxoSmithKline, Rutgers University, Florida State University, Johns Hopkins University, and University of Louisiana, among others. This excellent conference was made possible by the unflagging energy of the organizing committee, chaired by Presidential Research Professor **Bimal Sinha** (other key members were Professors **Taeryon Choi, Junyong Park, and Xiao Wang**), enthusiastic graduate student volunteers, and dedicated departmental staff (**Deneen Blair**). A grant from the National Security Agency supported the event (principal investigators **Bimal Sinha** and **Nagaraj K. Neerchal**).
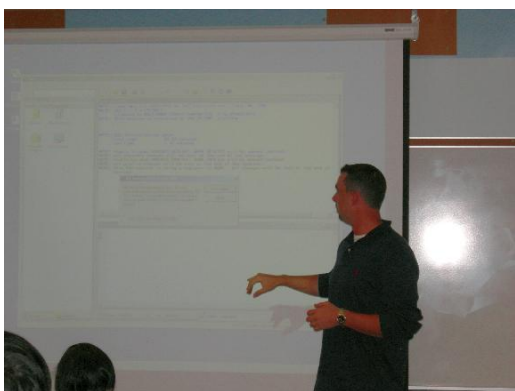
Updates from CIRC: Expanded Software Workshops and Willy Weng Consultant of the Year

The department initiated the Center for Interdisciplinary Research and Consulting (CIRC) to make the expertise available to the community. CIRC continued to expand its cooperation with the Office of Information Technology to offer weekly hands-on software workshops in instructional computer labs with an expanded set of topics. This includes for instance an advanced MATLAB workshop that teaches attendees how to optimize code for best efficiency. CIRC's consulting work included numerous interesting projects. A presentation at the annual CyberKnife conference based on CIRC work was cited as the most outstanding.

One of our summer projects took advantage of the combined Mathematics and Statistics skills in CIRC by using MATLAB for statistical simulations. The basis for these activities was the strong participation of our CIRC affiliated students. In addition to the RAs **Alen Agheksanterian** and **Justin Newcomer**, the CIRC students in 2007 included **Aarti Gupta**, **Robert Newton**, **Elizabeth Stanwyck**, **Ines Urrestarazu**, **Willy Weng**, **Yukun Wu,** and **Shiming Yang**. The Spring crew is shown with the Directors **Nagaraj K. Neerchal** and **Matthias K. Gobbert**. To highlight the invaluable contributions of the students, we instituted an award for the Consultant of the Year, and **Willy Weng** is its inaugural winner. For more information, please visit the CIRC webpage at www.umbc.edu/circ.

Professor Manil Suri receives Wilson H. Elkins Professorship

Professor Manil Suri has been selected to receive a Wilson H. Elkins Professorship for FY 2008. The award will support Prof Suri's plans to foster interest and learning in mathematics among K-12 students and the general public. Established in 1978, the Elkins Professorships support professors who demonstrate exemplary ability to inspire students and whose professional work and scholarly endeavors make a positive impact beyond USM.

Kudos

- Congratulations to **Jacob Kogan** (photo) for his promotion to Full Professor!
- **Jesse Mashbaum**, Assistant Director of Business Services, was named Employee of the Quarter for his work during the transition in the department.
- Grants recently awarded to faculty in the department include National Science Foundation as well as Department of Energy grants to **Susan E. Minkoff**, a Food and Drug Administration grant to **Yi Huang**, an Environmental Protection Agency grant to **Nagaraj K. Neerchal**, and a contract from Sandia National Laboratories to **Andrei Draganescu**. Additionally, **Susan E. Minkoff** received an ADVANCE Research Assistantship.
- **Filiz Gurtuna**, a Ph.D. candidate in Applied Mathematics, was granted a patent entitled "Method for high-level parallelization of large scale QP optimization problems" together with Aleksey Urmanov and Kenny Gross, as a result of her internship at Sun Microsystems, Inc., in Summer 2004. The patent number is 7231376 and details can be found at www.uspto.gov/patft/index.html.

Image credits: *M. K. Gobbert, M. Groth, J. Mashbaum, N. K. Neerchal*