

BiosRhythms

SCHOOL OF PUBLIC HEALTH

THE UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL

Department of Biostatistics

Message from the Chair



This past year has been an exciting one for the department, and I am thrilled to be chair of such a vibrant organization with so many things happening. I have enjoyed meeting and becoming acquainted with many of our successful and happy alumni, and through their intriguing stories I have become more aware of our rich history. Being aware of this history has made me more conscious of the footprints we are leaving now for future generations, and my optimism for that future is secure because of the wonderful faculty, students, staff and alumni of our department. This past year, as with previous years, has been extremely successful for the Department. We welcomed 27 new graduate students and three new BSPH students to our program in August. We are very pleased that many bright, young scholars are interested in the field of biostatistics and our department in particular. Students bring a tremendous sense of vitality and purpose to the department which we are always appreciative of.

We have also added several new faculty members. Haitao Chu, Ph.D., has been appointed as a research associate professor with primary responsibilities in the cancer center. Dr. Chu comes to us from Johns Hopkins University where he was an assistant professor, and his main research areas are epidemiological and statistical methods for observational studies and clinical trials. Wei Sun, Ph.D., is a tenure track assistant professor, recently graduated from the University of California at Los Angeles. His research area is in statistical genomics, and he has a joint appointment in the Department of Genetics. Jason Fine, Sc.D., joined us in December as a full professor. He comes to us from the University of Wisconsin at Madison where he was a full professor in the Departments of Statistics and Biostatistics and Medical Informatics. His research expertise includes survival analysis, genetics, diagnostics imaging and longitudinal data analysis. He is particularly well known for his work in competing risks data. Andrew Nobel, Ph.D., is a new joint appointment in our department. His primary appointment is in the Department of Statistics and Operations Research, where he has been on the faculty for over 12 years. He has worked on genomics research with several of our faculty and continues to make important contributions in that area.

We also have several new staff members. Tania Osborn is at McGavran-Greenberg Hall, while Matt McGrievy splits his time between McGavran-Greenberg Hall and the Collaborative Studies Coordinating Center. In addition, Elizabeth Cahil, Paula Gildner, Kim Chantala, Dianne Mattingly, Ashley Britt, Steve Cory, Carter Church, Xiao Zhuang, and Chris Anderson are at the Collaborative Studies Coordinating Center. We are also pleased to congratulate Evie McKee, who is one of two university-wide winners of the Excellence in Management Award this year.

Two faculty received University and School awards this past year. Dr. Larry Kupper received the University of North Carolina Distinguished Teaching Award for Lifetime Achievement, and Dr. Gary Koch received the School of Public Health John E. Larsh Jr. Award for Mentorship. Two of our faculty played significant leadership roles in ENAR this past year. Lisa LaVange served as President of ENAR for 2007 and Amy Herring served as Program Chair of the 2007 ENAR Meeting. The Greenberg Lecturer this year was Dr. Thomas Fleming, a former chair of the Department of Biostatistics at the University of Washington and a world-renowned expert on clinical trials. In February, former faculty member of our department, Dr. Dennis Gillings, and his wife Joan, pledged \$50 million to the School of Public Health to accelerate innovation in public health and to establish Innovation Laboratories to address high priority health issues. In September, Dr. Joseph Ibrahim was awarded an Innovation Laboratory entitled the Center for Innovative Clinical Trials to accelerate development of cost-effective methodology for clinical trials.

Three faculty members were promoted this year. Donglin Zeng, Ph.D., was promoted to Associate Professor. He has made numerous contributions in survival analysis and genetics methodology and is especially well known for his use of empirical process methods for solving biostatistical problems. Fei Zou, Ph.D., was also promoted to Associate Professor. She has made many contributions in statistical genetics and genomics and is recognized in particular for her work in linkage analysis and genomics. John Preisser, Ph.D., was promoted to Research Professor. John is well known for his important work in the analysis of longitudinal and clustered data using estimating equations and in the application of biostatistical methods to occupational and dental health. Regrettably, Drs. Charity Moore, Brian Neelon and Mark Weaver, all Research Assistant Professors, have resigned from their positions in our department. Dr. Moore is working at the Center for Research on Health Care at the University of Pittsburgh School of Medicine, Dr. Weaver is working at Family Health International in the Research Triangle, and Dr. Neelon is a post-doctoral fellow at Harvard.

The research program in Carolina Biostatistics continues to flourish. This year the faculty brought in about \$14 million in externally funded research grants, up significantly from \$9 million last year. The publication record of the faculty has also been excellent in terms of both public health research and biostatistical methods. Dr. Larry Kupper was the lead biostatistician and co-author of an article recently published in the August 1, 2007 issue of the Journal of the American Medical Association. The article, entitled "Child Maltreatment in Enlisted Soldiers' Families During Combat-Related Deployments", was featured on the front page of USA Today and was described in several national publications and on the nationally syndicated radio show All Things Considered. Drs. Donglin Zeng and Danyu Lin had an influential discussion paper on semiparametric regression models for survival data read in January at the Royal Statistical Society Ordinary Meeting in London. The paper and accompanying discussion appeared this year in the Journal of the Royal Statistical Society, Series B. In the September 2007 issue of the Journal of the American Statistical Association, four articles were authored by faculty from our department, including Drs. Jason Fine, Mayetri Gupta, Amy Herring, Joseph Ibrahim, Michael Kosorok and Hongtu Zhu. Dr. Brent Johnson, a former postdoctoral fellow in our department, was also one of the authors. Thus our department continues to be one of the leading research programs in biostatistics in the nation. The overall scholarly contributions of the Department represent a remarkable achievement and one of which we can all be proud.

With warmest regards,

Michael

ALUMNI NEWS

From the Registrar:

Hello everyone! We know you have been eagerly awaiting the arrival of Biosrhythms and we are more than happy to provide another year's worth of exciting news for your enjoyment. It's hard to believe that 2007 is over. What a year it was! We have to say that we have the best job in the BEST department. Thanks to our past and present students for making this an easy and true statement for us to make. You are the reason we are as well known as we are. Your accomplishments in your employment sectors lay the foundation for us to continue to build our strong department. For that we must say a heartfelt "Thank You".

We will be hosting our Alumni Reception at ENAR and ASA again this year. ENAR will be in Arlington, Virginia from March 16-19, 2008. We are in the planning stages for this event, but save the date of March 17, 2008. You can visit our website to keep up with current events and plans. You will not see us listed in the online program for ENAR, but we will be on the marquis and there will be a posting outside our event room. We will send an email reminder about the reception closer to the date. ASA is still a ways off, so plans have not begun for that event yet. Information will be posted on the web when finalized. This is always a fun time to catch up.

Speaking of catching up, be sure to check out Alumni Notes to see who's doing what in the career world, who's family is growing, who's getting hitched, and everything else in between. If you have news and missed this issue, we will be looking for those tidbits this year too, so email them to me (Melissa). While we're on the subject of catching up and keeping in touch, let me remind you to visit the Alumni webpage ([http://](http://www.sph.unc.edu/alumni/alumni_directory.html)

www.sph.unc.edu/alumni/alumni_directory.html) and update your address and professional information. It doesn't require membership dues to update this information, but you are welcome to join the Alumni Association and contribute directly to the Department of Biostatistics, the school, or the university. If you are interested in donating to the department directly, simply contact Debbie Quach (dquach@bios.unc.edu). We appreciate all the support from our Alumni and friends.

That should about do it for us in this issue! You will hear more from us via emails as we near event dates. Please feel free to send an email to say "hi". We love to hear from you all. We hope your holidays were joyous and your New Year a happy and prosperous one.

Warmest Regards,
Melissa and Veronica

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Special Thanks to Linda Kastleman!

Attention Alumni!

Biostatistics is preparing for a Graduate School Review of its academic program. In preparation for the review we will be asking all alumni to complete a web-based survey in February 2008. Please make sure your information (especially current email address) is updated in the alumni database so you can complete our survey. To check/update your information, go to this website:

<https://s4.its.unc.edu/ALDirectory/alsph.htm>

Thanks for your assistance.

Catellier Receives Grizzle Award



Diane Catellier

Dr. Diane Catellier, (MS '93, DrPH '98), is the 2007 recipient of the James E. Grizzle Distinguished Alumni Award. Dr. Michael R. Kosorok, Professor and Chair, presented the award at the Bios Alumni Day held on April 20th.

Dr. Catellier received her MS in 1993 and her DrPH in 1998 from the department. She joined the department as a Research Assistant Professor in 1998. Since her appointment, Diane has participated as a biostatistician-investigator on eight federally funded research projects. She is currently the Principal Investigator for the Atherosclerosis Risk in Communities (ARIC) MRI and Neurocognitive Longitudinal Study. Diane is also actively involved in a variety of other trials.

Diane has collaborated with a wide variety of medical and public health researchers. She has 57 refereed publications, with productivity increasing with passing time. She coauthored 6 articles in 2003, 6 in 2004, 10 in 2005 and 9 in 2006; most of these publications are in applied medical or health research journals and reflect her excellent record as a collaborative biostatistician. Included among these publications is a first-authored important and highly cited article about imputation methods for accelerometer data. Diane has also coauthored 2 book chapters.

Diane is recognized nationally. She has been invited to serve on many NIH grant review committees. She serves on multiple external DSMBs, and on a Canadian analogue to an NIH study section. She has taught short courses and workshops at NIH. She also serves as a reviewer for journals in Biostatistics and Epidemiology, and for well-respected subject matter journals like *Circulation*. Within the UNC community, Diane serves as an advisor for the LINC (Linking Interventions for Children) initiative and reviews abstracts for Women's Health Research Day.

The award was established to honor Dr. James E. Grizzle, former department chair, for his outstanding contributions to biostatistical research and consulting. The award is presented to a graduate of the University of North Carolina Department of Biostatistics in recognition of an outstanding record in the development of new statistical methodology and in the application of statistical methods to important public health problems. Evidence of an outstanding record is measured by the quality and quantity of peer-reviewed publications in both statistical and subject-matter journals. The intent of the award is to recognize and encourage rising stars in the field of biostatistics.

Alumni Shorts

BIOS alumni Lester R Curtin (PhD '77, Mathematical Statistician, National Center for Health Statistics) and Katherine L. Monti (PhD '78, Senior Statistical Scientist and Director, Rho, Inc) were elected as Fellows of the American Statistical Association at its annual meetings held in Salt Lake City in August 2007. David Dunson, Adjunct Professor of Biostatistics, Senior Investigator, NIEHS, was also elected as ASA Fellow this year.

Tonya (Sharp) King (MS'95, PhD '99) moved to Sitges, Spain where she will be a visiting professor in Biostatistics at the University of Barcelona for one year. She is still working for Penn State from Spain part-time, but will also be collaborating with a colleague at the University of Barcelona with whom she has previously published papers.

Sarah Stargel Heaner (BSPH '06) married Will Heaner on July 14, 2007.

John Fieberg (MS '96) and his wife are proud to report the birth of Raymond Fieberg (named after Raymond Felton) on August 18, 2007. Ray joins his big sister, Zoe, now 2 1/2.

Lori Evarts (MPH '89) is now a member of UNC-CH School of Public Health as an Clinical Assistant Professor, Public Health Leadership Program. She also works part-time with Julie MacMillan (another Bios alum!) at SPH Carolina Public Health Solutions.

Judith Bebchuk Segal (MS '94) would like to announce her marriage to Mark Segal on July 28, 2007. Mark is originally from Minneapolis, which is where they met, and they moved to Washington D.C. a little over 2 years ago.

Guochen Song (MS '05) left CSCC in April 2007 and joined INC Research, Inc. as a biostatistician. INC is a fast growing CRO located in Raleigh and Guochen is longing for more BIOS alumni to join the team.

DEPARTMENTAL HAPPENINGS

Bayesian Biostatistics Workshop

The Biostatistics Department hosted a Bayesian Biostatistics Workshop this past May in Chapel Hill.

This continuing education event was co-sponsored by SAS, and the organizing committee included Lisa LaVange and Amy Herring from UNC Biostatistics and Maura Stokes from SAS. The workshop spanned two days and featured lectures by Alumni Distinguished Professor Joseph Ibrahim, Professor Amy Herring, and David Dunson of NIEHS. Topics included both: introductory and advanced Bayesian methods; an introduction to Markov chain Monte Carlo methods for posterior computation; Bayesian applications in linear and logistic modeling and survival analysis; and Bayesian methods for clinical trials. The statistical methods were illustrated with the use of new software available from SAS for Bayesian inference, and members of the SAS development team were on-hand to answer questions.



Professor Joseph Ibrahim conducts lecture.

The workshop was attended by 74 colleagues representing industry, academia, and government research organizations. Many attendees were from the Research Triangle area, while others traveled from as far away as Boston, Michigan, and California. Proceeds from the workshop provided funding for graduate student scholarships. The Institute of Public Health at UNC provided meeting facilitation services. Based on the enthusiastic responses from attendees, the department plans to expand the workshop in 2008 to include lectures on survival analysis, adaptive designs for dose-finding trials, and sequential monitoring of clinical trials from both Bayesian and frequentist points of view. Registration information for the 2008 workshop will be available on the UNC Biostatistics website in early January. Please consider attending in what we hope becomes an annual department event!

Bios Announces New Summer Program

The Department of Biostatistics announces the creation of the Biostatistics Summer Undergraduate Research and Education (BSURE) Program. BSURE will be a 10-week summer undergraduate program in the Department of Biostatistics, UNC School of Public Health, to begin Summer 2008 (mid-May to end of July). Dr. Lloyd J. Edwards, Associate Professor in Biostatistics, will serve as Director of the program.

The BSURE Program will seek outstanding undergraduate students in the mathematical/statistical sciences who are interested in pursuing advanced degrees in biostatistics. BSURE will train students in biostatistical theory, statistical computation, and data management; each student will be assigned to a research project with a faculty mentor. Undergraduate students will enter into the program after completing their sophomore year and will be encouraged to spend two summers in the program.

For more information, please visit http://www.sph.unc.edu/bios/the_biostatistics_summer_undergraduate_research_and_education_bsure_program_5735_5017.html.

New Center Expects to Make Clinical Trials Faster, Cheaper, More Reliable

Seeking better ways to design and conduct clinical trials, the University of North Carolina at Chapel Hill School of Public Health has established a new Center for Innovative Clinical Trials under the direction of Joseph G. Ibrahim, Ph.D., Alumni Distinguished Professor of Biostatistics in the UNC School of Public Health, and Director of the Biostatistics Core at the Lineberger Comprehensive Cancer Center.

Faculty and other collaborators within the center will develop new methods for collecting and analyzing data from clinical trials, and then will efficiently and rapidly make these scientific advances available to researchers, practitioners, the biomedical community, and the public as a whole.

"We want to find ways to speed up and improve the clinical trial process, and make it a more efficient, precise assessment of treatments, whether they are drugs, devices, or behavior modification programs," said Dr. Ibrahim. "We want to find ways to get results faster, but we want them to be more precise and useful in determining if the treatment is effective, and if so, for which patients. The ultimate goal is better healthcare."

The center will have an interdisciplinary focus and theme, in which faculty from several departments at UNC, as well as collaborators from industry and other universities, will engage in both methodological and applied research in clinical trials design, analysis and evaluation. Members of the center will include faculty and other experts in biostatistics, statistics, medicine, epidemiology, maternal and child health, nutrition, environmental health, health policy, economics, business, dentistry, psychology, psychiatry, nursing, biology and chemistry.

The Center for Innovative Clinical Trials is the first Gillings Innovation Laboratory - interdisciplinary research groups funded initially through a gift to the UNC School of Public Health from Dennis and Joan Gillings. The center also will seek funding from groups including the National Institutes of Health and from industry.

"Tens of thousands of patients participate in clinical trials each year, and their experiences benefit essentially everyone. New methods, integrated into practice more quickly, would make this powerful tool even more effective," said Julie MacMillan, director of Carolina Public Health Solutions, the program within the School of Public Health that will administer initiatives driven by the \$50 million Gillings gift. "Joe Ibrahim is known throughout the world as an expert in new statistical methods. He's also a strong leader who can bring together perspectives from many disciplines to truly advance the science behind clinical trials."

Ibrahim said he believes using different statistical methods, both when designing trials and when analyzing the results, can help avoid situations where marketed medicines or treatments are found to have significant problems or side effects for many patients.

"I think we could make a real difference in clinical trials," he said. "Right now, trials are primarily designed to pay special attention to one primary endpoint in both the design and analysis stage. We are working on more of a multi-dimensional approach, where we will look at several endpoints at once. We believe this will make adverse events, toxicity, treatment interventions, and quality of life more apparent earlier on in the trials."

DEPARTMENTAL HAPPENINGS

New Clinical Trials Course Offered in 2007



This past fall saw a new course offering for graduate students in Biostatistics, the Design and Analysis of Clinical Trials (Bios 752). The course covered a variety of topics in clinical trials, including phase 1-4 trial designs, pharmacokinetics/pharmacodynamics, dose-finding studies, adaptive designs, ICH-E9, multiplicity, interim analysis and sequential monitoring, non-inferiority trials, and Bayesian trial designs. Drs. Anastasia Ivanova and Lisa LaVange were the instructors for the study, and according to Dr. LaVange, their method for co-teaching was inspired by Drs. David Kleinbaum's and Larry Kupper's EPID 268 course from the 1970s - 1980s. Dr. Ivanova's background

in cancer clinical trials and adaptive designs was complemented by Dr. LaVange's experience from industry, including phase 3-4 designs and regulatory submissions. Approximately 25-30 students attended each lecture; 19 students were officially registered for the class. The students competed as teams in a game of Jeopardy at the class party held in November. In addition to the more scientific themes, Jeopardy categories included 'Russian Statisticians', 'Famous UNC Bios Alums,' and 'UNC Basketball Statistics.' The instructors and class members are pictured, along with three guest lecturers, Drs. Gary Koch, Kant Bangdiwala, and Dan Weiner. This course will be offered again in Fall 2008

Fleming 2007 Bernard G. Greenberg Lecture Series Speaker

The 2007 Bernard G. Greenberg Distinguished Lecture Series was held May 9-11, 2007. The lectures were presented by Dr. Thomas R. Fleming, Professor of Biostatistics in the Department of Biostatistics at the University of Washington.

Dr. Fleming received his Ph.D. from the Department of Statistics at the University of Maryland in 1976. His research interests include survival analysis, cancer clinical trials, AIDS research, and sequential analysis, and his teaching interests are methods for design, conduct and analysis of clinical trials, and survival analysis. Dr. Fleming also serves as Professor of Statistics in the Department of Statistics.

The series consisted of four lectures over the 3-day period:

- (1) *Lecture I: May 9, Surrogate Endpoints: The Challenges are Greater than They Seem;*
- (2) *Lecture II: May 10, Confidentiality in Monitoring Clinical Trials, and Adaptive Monitoring Procedures: ...The Good, the Bad...;*
- (3) *Lecture III: May 10, Regression to the Mean Bias, and Ethical Issues in Monitoring Clinical Trials...and the Ugly...;*
- (4) *Lecture IV: May 11, Issues in Non-Inferiority Trials.*

Named in honor of Bernard G. Greenberg, former dean of the School of Public Health and department chair, the Greenberg Lecture Series is held annually. The abstracts can be found at http://www.sph.unc.edu/bios/seminars_2598_2722.html



Pictured l-r: Dr. Thomas Fleming and Dr. Michael R. Kosorok, Chair

DEPARTMENTAL HAPPENINGS

UNC Biostatistics Contributes to Record ENAR Meeting

The Eastern North American Region (ENAR) of the International Biometric Society (IBS), the largest professional organization of biostatisticians in the world, held its annual meeting in Atlanta, GA March 11-14. UNC Biostatistics wishes to extend its congratulations to the UNC faculty, students, and alumni who helped make the 2007 meeting the largest in ENAR history, with over 1100 registered attendees!

UNC Biostatistics is proud to have more Distinguished Student Award Winners than any other department this year. Our three winners are Jon Gelfond (for his work "Proximity Model for eQTL Detection" with Alumni Distinguished Professor Joe Ibrahim and Associate Professor Fei Zou), Emma Huang (for her work "Efficient Association Mapping of Quantitative Trait Loci with Selective Genotyping" with the Dennis Gillings Distinguished Professor Danyu Lin), and Chris Slaughter (for his work "Bayesian Modeling of Embryonic Growth Using Latent Variables" with Associate Professor Amy Herring). Ping Bai (for her work "Robust Independent Component Analysis for fMRI" with Professor Young Truong), a graduate student in the UNC Department of Statistics and Operations Research, also received a Distinguished Student Award. We are also pleased that many UNC students, faculty, and friends volunteered at the meeting as session organizers, session chairs, and in other important roles.

In addition to its strong record of scholarship, UNC also has a strong record of leadership at ENAR. This year's President is Professor Lisa LaVange, an alumna of the department and Professor of Biostatistics; the current President-Elect is Rocky Feuer of NCI, a UNC Biostatistics alumnus. The meeting's Program Committee was chaired by Associate Professor Amy Herring (who also serves as Regional Advisory Board Chair Elect), and BIOS PhD graduate Robert Lyles (now Associate Professor at Emory University) served as Local Arrangements Chair. Other faculty members involved in meeting planning include Research Professor John Preisser (Program Committee and Regional Advisory Board Member) and Associate Professor Lloyd Edwards (Diversity Caucus and Regional Advisory Board Member); also, Professors Joe Ibrahim and Danyu Lin taught Continuing Education Courses, and Professor and Chair Michael Kosorok led a roundtable discussion of new research areas in biostatistics. Alumni having major roles include John Bailer (Continuing Education Committee), DuBois Bowman (Regional Committee Member and Fostering Diversity in Biostatistics Workshop Co-Chair), Chris Coffey (2007 ENAR Program Chair for JSM), Peter Imrey (Past President and Student Awards Committee Chair), Keith Muller (Regional Advisory Board Member and roundtable leader), Paul Rathouz (Regional Committee Member), and Maura Stokes (Continuing Education Committee and ENAR Representative to ASA Committee on Meetings).

UNC has a strong history of leadership in the society, with four former Presidents from its biostatistics alumni and faculty members: Bernard Greenberg, Jim Grizzle, Peter Imrey, and Gary Koch. Two graduates of the UNC Statistics Department, Marie Davidian and Judith O'Fallon, have also served the society as President.

Gillings Gift

Great News! Dr. Dennis Gillings and his wife, Joan Gillings, made a \$50 million commitment to the UNC School of Public Health. In recognition of this gift, the School of Public Health will be renamed the "Dennis and Joan Gillings School of Global Public Health." The Gillings' pledge, announced Feb. 21, raised total Carolina First commitments to more than \$2 billion.

Gillings, chairman and chief executive officer of Quintiles Transnational Corp., is a former UNC biostatistics professor and a current member of the School's Advisory Council. Joan has had careers in public health, including the Carolina School of Public Health, and in commercial real estate.

Although the Carolina School of Public Health has long been known for its outstanding research, teaching and practice, we now have the opportunity to bring this work to the scale needed to achieve profound state, national and global impact. This transformative gift will enable our School to acquire critical resources to accelerate solutions to public health problems across North Carolina and around the world.

DEPARTMENTAL GRANTS

Training Program Renewed

Biostatistics is pleased to announce that our training program in environmental biostatistics, "Biostatistics for Research in Environmental Health", has been renewed by the National Institute of Environmental Health Sciences (NIEHS) through 2012. This program funds 20 pre-doctoral and 8 post-doctoral fellows in biostatistics, environmental epidemiology, and environmental exposure assessment. This training program was originally funded in 1971 and has been led by Dr. Bernard G. Greenberg (1971-1972), Dr. Lawrence L. Kupper (1972-2006), and Dr. Amy H. Herring (2006-present).

The interdisciplinary goal of this training program is to prepare scientists to address emerging challenges in environmental health research, with an emphasis on the development of tools for harnessing the rich and high-dimensional information that is now routinely available in scientific studies.

Preisser Awarded R03

John Preisser, Research Professor of Biostatistics, has been awarded funding by the National Institute of Dental and Craniofacial Research (NIDCR) for his R03 grant "Estimating Association of Clustered Ordinal Dental Data" in the amount of \$214,117 for a period of 2 years. Preisser will serve as Lead Principal Investigator.

The grant proposal involves a secondary data analysis of 186 subjects from a NIDCR-funded clinical trial to determine if sensory alteration following a Bilateral Sagittal Split Osteotomy (BSSO) procedure differed for those patients who were given opening exercises only following surgery and those who received sensory re-training exercises in conjunction with standard opening exercises. The aims are to definitively assess the efficacy of sensory re-training by: (1) testing and relaxing the proportional odds assumption in cumulative logit models via partial proportional odds whereby proportional odds are assumed for only some of the predictors; (2) conducting a simulation study to determine whether the statistical methods applied to the sensory re-training data are valid for the particular models and sample sizes considered in terms of coverage rates of 95% confidence intervals and test sizes; (3) developing, evaluating, and applying to the sensory re-training data a modified alternating logistic regressions (ALR) procedure that has better small sample properties than standard ALR as assessed in the simulation study; and (4) writing comprehensive statistical software implementing modified and standard ALR as user-friendly options.

Kosorok Receives Funding

Michael R. Kosorok, Chair and Professor of Biostatistics, was recently awarded a grant entitled "Pulmonary Benefits of Cystic Fibrosis Neonatal Screening" for a period of 5 years and for \$82,500. The Principal Investigator of the grant is Philip M. Farrell at the University of Wisconsin-Madison, and Dr. Kosorok will serve as Subcontract P.I. The project's overall goal is to address the following hypothesis: Early diagnosis of cystic fibrosis through neonatal screening will be medically beneficial without major risks. Specific aims include assessment of nutritional status throughout childhood, including associated outcomes such as psychosocial and cognitive functioning; the evolution, progression and epidemiology of lung disease; and newborn screening cost effectiveness. This project has the potential to impact healthcare quite significantly by promoting molecular genetics screening of all newborn infants.

Cai Wins Competing Renewal

Dr. Jianwen Cai, Associate Chair and Professor in Biostatistics, has won a competing renewal for her grant "Statistical Problems in Multivariate Survival Analysis" from the National Heart, Lung, and Blood Institute in the amount of \$719,638 for a period of four years. The broad, long-term objective of this research project is to develop new statistical methodology for analyzing multivariate or correlated failure time data from cardiovascular disease research and other biomedical studies. This grant was first funded on January 1, 1997.

Grant Provides Interaction Among New Researchers

Dr. Mayetri Gupta, Assistant Professor in Biostatistics, has been awarded funding for her grant "North American Meeting of Researchers in Statistics and Probability" for a period of one year in the amount of \$20,920 from the National Science Foundation (NSF). It will also be funded by the Office of Naval Research in the amount of \$12,510 over a period of 1 year. Dr. Gupta will serve as Principal Investigator.

The grant describes plans for the Tenth Meeting of New Researchers in Statistics and Probability, a conference series sponsored by the Institute of Mathematical Statistics, to be organized by and held for junior researchers. The primary objective is to provide a much needed venue for interaction among new researchers.

The intellectual merit of this proposal is based on its human resources development. The professional development of new researchers is stimulated by promoting their interaction, creating networks of colleagues (which is difficult at a large meeting, such as the JSM). Participants present their work in a smaller, more controlled conference environment, maximizing their intellectual interaction and growth. The broader impacts of this conference series include professional development for attendees and the encouragement of participation by underrepresented groups. The primary goals of the conferences are the professional education of new researchers and the creation of a network among these junior researchers, both vital parts of professional growth.

Truong Proposal Funded

Dr. Young Truong, Professor of Biostatistics, has been awarded funding by the National Science Foundation for a new research proposal. Entitled "Function Estimation for Biased Sampling and fMRI Data," the proposal has three projects that involve the use of polynomial splines to model (1) point process and spatial-temporal time series data, (2) selection biased (length-biased) data, and (3) randomly truncated data. This is a 3 year award which began July 1, 2007 in the amount of \$564,079.

The theme of this research proposal is to apply statistical methods to detect or locate brain activation regions using functional magnetic resonance imaging (fMRI) data. This is carried out by (1) a novel approach to hemodynamic response modeling for event-related stimuli, (2) a new method for constructing spatial maps and (3) a spectral domain procedure for studying connectivity of the brain. The main medical application of this research is to apply these MRI imaging techniques to detect brain abnormalities occurring in patients with Parkinson's disease and to infer how they differ from the normal brains.

Kupper Presented 2007 UNC Mentor Award for Lifetime Achievement



Larry Kupper

Dr. Lawrence Kupper, Alumni Distinguished Professor of Biostatistics, is the winner of the 2007 UNC Mentor Award for Lifetime Achievement, which acknowledges "teaching beyond the classroom." Created in 1997, this award carries a one-time stipend of \$1,000. He was recognized during halftime of the Carolina-N.C. State men's basketball game in February of 2007.

This award is presented yearly to one person, and the first winner of the award was Dean Smith, the hall-of-fame UNC basketball coach.

While Larry is well known as a researcher and teacher (he won the 1996 UNC Distinguished Teaching Award for Post-Baccalaureate Instruction), this award recognizes Larry's generous contributions to academic life for his outstanding mentoring of students, postdoctoral researchers, and junior faculty. Perhaps Larry's contributions are best described by comments from the seventeen letters of nomination submitted on Larry's behalf.

"When he won his award for excellence in teaching . . . with the money awarded he established a grant [helping] people to publish their dissertation papers"

"When I came [to UNC] from China, Dr. Kupper gave me the confidence I needed to begin study and work in a totally foreign environment. He even spent time with my dear parents who came from China to visit me. I often tell people that Dr. Kupper is the best thing that happened to me at UNC besides the fact that I met my boyfriend here. [In fact,] Dr. Kupper gave advice to my boyfriend, who became a tenure-track professor at another university, and helped him through some very frustrating times"

"He won the School of Public Health's 2003 Award for Mentorship. He has personally supervised the research efforts of 80 biostatistics students and three who have won the [School's] prestigious 'outstanding doctoral dissertation award.'"

"Now that I am a professor, I model my own mentoring on Larry's example"

"What he has been doing and is doing for students is a vivid realization of the idea . . . pay it forward."

Kosorok Named IMS Fellow

Michael R. Kosorok, Ph.D., Chair and Professor of Biostatistics, has been named Fellow of the Institute of Mathematical Statistics (IMS). Fellowship in the IMS recognizes distinction in research in statistics or probability by publication of independent work of merit. Kosorok was inducted as Fellow at the IMS Annual Meeting in Salt Lake City, Utah on July 30.

The IMS honored Kosorok for his "contributions to the applications of empirical processes and semiparametric methods in biostatistics, especially in event-time analysis, clinical trials, and microarray analysis," as well as for "dedicated editorial service."

Each Fellow nominee is assessed by a committee of his/her peers for the award. In 2007, after reviewing 48 nominations, 23 were selected for Fellowship. Created in 1933, the Institute of Mathematical Statistics is a member organization which fosters the development and dissemination of the theory and applications of statistics and probability. The IMS has 4500 active members throughout the world. Approximately 5% of the current IMS membership has earned the status of fellowship.

Ibrahim and Qu Co-author UNC Study, Question FDA Genetic-Screening Guidelines for Cancer Study

Not everyone needs a genetic test before taking the cancer drug irinotecan, and the U.S. Food and Drug Administration should modify its prescription guidelines to say so, according to researchers at the University of North Carolina at Chapel Hill. Joseph Ibrahim, Ph.D., and Pingping Qu, Ph.D., of the UNC School of Public Health, are co-authors of the study. Irinotecan, also known by its brand name Camptosar, is used mainly as a second-line treatment for colorectal cancer. The FDA recommends screening patients for a gene that could make them more susceptible to the harmful side effects of the drug, the most worrisome of which is neutropenia, an abnormally low number of white blood cells.

In a paper published in the Aug. 28, 2007 *Journal of the National Cancer Institute*, UNC researchers analyzed data from nine previous studies of irinotecan. They found that patients who received a medium or high dose of the drug had greater risk of neutropenia if they had two copies of a variation of the gene UGT1A1, known as UGT1A1*28. At lower doses, however, the risk was the same regardless of what UGT1A1 gene the patients had. "Many institutions saw the FDA's recommendation as a mandate to test all patients before treating them with irinotecan even though many clinicians didn't think it was always necessary given that low doses of the drug weren't causing problems," said Howard McLeod, Pharm.D., senior author of the study and director of the UNC Institute for Pharmacogenomics and Individualized Therapy.

"Our review showed that at low doses the drug is well tolerated and can be taken by most people," McLeod said. "As the dosage increases, genetics become a larger factor in determining what side effects patients experience, and then testing becomes essential."

Having a genetic test available for a medicine is valuable, but so is knowing when to use that test, said Dr. Richard Goldberg, a co-author of the study. "There are so many treatment options for cancer patients that the more information we have about matching the right therapy to the patient, the better off we all are," Goldberg said. "Studies like this one give oncologists the tools needed to take better care of patients while avoiding tests and expenses that aren't needed."

The authors recommended that the FDA amend the product information for irinotecan to describe the association between irinotecan dose and risk of hematologic toxicity among patients with two UGT1A1*28 genes.

Koch Receives Mentorship Award



Gary Koch

Gary Koch, PhD, Professor of Biostatistics, received the John E. Larsh Jr. Award for Mentorship during the School of Public Health commencement ceremony on May 12, 2007. A highly competitive honor conferred only every other year, the Larsh Award recognizes faculty at the School of Public Health who have demonstrated outstanding moral character, a long-term commitment to the overall growth of students, availability to students, an ability to stimulate interest in learning and personal traits leading to excellence in mentoring.

Koch joined the faculty at the School of Public Health in 1963 and has served as a full professor since 1976. He regularly advises at least 15 master's and doctoral students every year, whereas a typical load for many professors is no more than five. He has encouraged publication among his graduate students by inviting them to co-author papers and is a staunch supporter of student travel, seeking travel opportunities and funding so that students can conduct research abroad.

FACULTY/STAFF NEWS



Richard Bilborrow is pictured far right.

Richard Bilborrow, Research Professor in Biostatistics, was in Ecuador in October, 2007, giving assistance on the design of household surveys on agriculture and deforestation at the offices of the Ministry of Environment in Tena, in the Amazon. He accompanied the Director of the Ministry's Amazon office when two huge flatbed trucks were caught illegally transporting logs from trees illegally cut.

In the photo, Bilborrow is helping workers push logs of 600 to 2000 pounds each off the captured truck. The truck driver will be fined, and the logs confiscated and sold. Ecuador has the highest rate of deforestation in South America, at great cost to biodiversity. UNC, led by Bilborrow, Steve Walsh in Geography, and Flora Lu in Anthropology, has had projects investigating population and deforestation in the Ecuadorian Amazon since 1989, supported by NIH, NASA and others.

Department Mourns Passing of Bettie Louise Nelson

We regretfully announce the passing of Bettie Louise Nelson on October 18, 2007, after a three-year battle with breast cancer. Bettie received a Master's in Public Health (1976) and a DrPH in Biostatistics (1983) from UNC-Chapel Hill. While in graduate school, Bettie helped organize and administer the Biostatistics Summer Program, which greatly increased the recruitment of talented minority students into the Department of Biostatistics during the mid-eighties. After receiving her doctorate, Bettie served on the staff of Meharry Medical School for seventeen years, as Data Manager in the Comprehensive Sickle Cell Center, and in the Meharry MEDTEP Program. In these roles she published several articles related to health services outcomes and seat belt use. Bettie relocated to her hometown of Richmond, VA in 1999, where she conducted and contributed to research on reducing the harmful effects of smoking as a Senior Research Scientist.

Bettie was inducted into the Delta Omega Honorary Society in Public Health in 1992, and served on the Board of Directors of the American Red Cross. She also was a member of the Zeta Phi Beta Sorority, Inc., through which she led and participated in various community activities focused on education, governmental affairs, economic development, and public health and wellness. Bettie was also an ardent supporter and advocate of Breast Cancer Research, and actively participated in walks and other fund-raising activities for the American Cancer Society.

Bettie was a mentor and counselor to many pursuing careers in Biostatistics, and she provided continuing advice and positive affirmation during difficult times. Regretting her passing are her two children Marc and Miranda, and their father, Dr. Maurice Knuckles, two sisters, one brother, and a host of family, friends, and professional colleagues. Bettie's life was an example of public service, religious conviction, and professional excellence. Our world is diminished by her passing.

Kupper Co-authors Textbook

Dr. Lawrence L. Kupper, Alumni Distinguished Professor of Biostatistics, was a co-author on the Fourth Edition of the textbook "Applied Regression Analysis and Other Multivariable Methods", which was published in April of 2007 by Duxbury Press, an imprint of Thomson-Brooks/Cole Publishing Company, Belmont, CA. Other co-authors include Drs. David Kleinbaum and Azhar Nizam of Emory University and Dr. Keith Muller of the University of Florida.

This textbook, first published in 1978 with just Drs. Kleinbaum and Kupper as authors, is arguably the most popular and best-selling applied regression text in the world, having been adopted by close to 90 universities and colleges in the United States and by several non-US academic organizations. This fourth edition is over 900 pages in length; it includes several revised chapters, new chapters on polytomous and ordinal logistic regression and on sample size planning, and two new chapters on the analysis of correlated data.

Zeng and Lin Read Paper to Royal Statistical Society



Dr. Donglin Zeng

Drs. Donglin Zeng and Danyu Lin read a paper to the Royal Statistical Society (RSS) at its Ordinary Meeting in London on Jan. 31, 2007. In a RSS Ordinary Meeting, a single paper is presented and discussed live. Drs. Zeng and Lin's paper, "Maximum Likelihood Estimation in Semiparametric Regression Models with Censored Data," appeared in the September, 2007 issue of Series B (Statistical Methodology) of the *Journal of the Royal Statistical Society (JRSS)*, along with the discussants' contributions and the authors' replies.

"Reading a paper to the RSS is one of the highest honors for statisticians," said Dr. Barbara K. Rimer, dean of the UNC School of Public Health. "Discussion papers published in Series B of the journal have had tremendous impact on the theory and practice of statistics, and it is rare for a non-Briton to read a paper."

Zeng and Lin's methodology can help public health investigators better analyze data that are potentially censored. Many studies in public health and medicine are concerned with the developments of certain types of events, such as disease and death. In a cancer clinical trial, investigators are often interested in the time to cancer recurrence or death. In a genetic epidemiological study, investigators may be interested in the age at the onset of schizophrenia. In such studies, censoring is inevitable because some subjects are not followed long enough for their event times to be fully observed.



Dr. Danyu Lin

The standard method for analyzing censored data was proposed by renowned English statistician Sir David Cox in a RSS Ordinary Meeting in 1972, but his model is often violated in practice. Zeng and Lin's paper extends the Cox model in several important directions. Their work deals with complicated data structures, which can arise when each study subject can experience several events, when multiple family members are enrolled in a study, or when different types of outcomes are simultaneously studied.

"Donglin and Danyu's work has generated a great deal of interest," said Dr. Michael Kosorok, chair of the Department of Biostatistics. "Their reading was well attended. Fourteen experts, including Sir David Cox, discussed their paper in person. Nearly twenty more experts provided written comments. This number of discussants is most likely a record in the long history of the RSS Ordinary Meetings."

Dr. Lin is the Dennis Gillings Distinguished Professor of Biostatistics. The endowed professorship was created through a generous gift from Dr. Dennis Gillings and attracted Dr. Lin to the School in 2001. Dr. Zeng also joined the Carolina Biostatistics faculty in 2001.

Bangdiwala Invited to Serve on Fulbright Senior Specialists Program Committee

Shrikant Bangdiwala, PhD, Professor of Biostatistics, has been selected to serve on the Public and Global Health Peer Review Committee for the Fulbright Senior Specialists Program. The announcement was made by representatives of the Council for International Exchange of Scholars (CIES), which administers the Fulbright Scholars Program.



Shrikant Bangdiwala

The Fulbright Senior Specialists Program is an initiative that offers flexible, short-term grants of two to six weeks to academics and professionals in the United States who are recognized as authorities in their fields. Peer review committees help to identify these experts by reviewing applications and making recommendations to the J. William Fulbright Foreign Scholarship Board. Those chosen as Specialists offer their expertise to foreign academic institutions by developing curricula, conducting seminars, or participating in other activities. Bangdiwala was chosen as a Fulbright Senior Specialist in 2005 to work on projects at the Universidad Nacional de Tucuman (Argentina).

Bangdiwala also has been a Fulbright visiting professor in Costa Rica, Chile, Argentina and South Africa and co-investigator of research projects in Chile, Brazil, India, Zimbabwe and Thailand. He has served on a number of data and safety monitoring committees, has been a review and study section member for National Institutes of Health and Centers for Disease Control and Prevention grant reviews, and he has served as statistical consultant and advisor to the World Health Organization and to editorial boards of scientific journals. A particular expertise of his is the coordination of large, international, multi-center collaborative research projects.

"CIES is very appreciative that [Dr.] Bangdiwala is able to provide this service, which is critical to the success of the Fulbright Senior Specialist Program," said Jack S. Bailey, deputy executive director of CIES.

Kupper Article in *Journal of the American Medical Association*

Dr. Lawrence Kupper, Alumni Distinguished Professor of Biostatistics, was the lead biostatistician and co-author of an article recently published in the August 1, 2007 issue of the *Journal of the American Medical Association*. The article, entitled "Child Maltreatment in Enlisted Soldiers' Families During Combat-Related Deployments", was featured on the front page of USA Today and was described in several national publications and on the nationally syndicated radio show *All Things Considered*. Other co-authors were Dr. Sandra Martin, Professor in the Department of Maternal & Child Health, and Deborah Gibbs and Ruby Johnson of RTI International.

The study compares the rates of child abuse and neglect among nearly 2,000 Army families while enlisted soldiers were at home and while they were deployed to Afghanistan and Iraq for combat operations between late 2001 and the end of 2004. The study was funded by the U.S. Army Medical Research and Material Command. According to the study, female civilian parents were those most frequently responsible for child abuse and neglect while their soldier-spouses were deployed. In such families, the rate of emotional and physical abuse was more than three times greater than when the husband was at home. The rate of child neglect, in which parents fail to properly care for their children, was nearly four times higher in such families.

New Faculty

Dr. Wei Sun was appointed Assistant Professor of Biostatistics and Genetics effective July 2007. Dr. Sun received his MS and PhD in Statistics from the University of California in Los Angeles. He will also be working at the Carolina Center for Genome Sciences.

Dr. Haitao Chu is serving as Research Associate Professor in the Department of Biostatistics. Dr. Chu comes to us from Johns Hopkins School of Public Health where he was an Assistant Professor of Biostatistics and Epidemiology. Dr. Chu received his MD from West China University of Medical Sciences in 1995 and his MS and PhD from Emory University in 2002 and 2003, respectively. Dr. Chu will be working primarily at the Lineberger Cancer Center.

Dr. Jason Fine comes to us from the University of Wisconsin where he served as Professor in the Department of Biostatistics and Medical Informatics & Statistics. Effective December 2007, Dr. Fine was appointed Professor in the Department of Biostatistics and the Department of Statistics at UNC-Chapel Hill. Dr. Fine received his Sc.M. from Stanford University and Sc.D. from Harvard University.

Visiting Faculty

Aijiao Deng, collaborating with Dr. Jianwen Cai

Wen Chen, collaborating with Dr. Fei Zou

Yanyan Liu, collaborating with Dr. Haibo Zhou

Antonio Sanhueza, collaborating with Dr. Lloyd Chambless and Dr. Gary Koch

Steve Cory, Applications Analyst (CSCC)

Carter Church, Social Research Assistant (CSCC)

Xiao (Michelle) Zhuang, Applications Analyst (CSCC)

New Staff

Elizabeth Cahil, Social Research Assistant I (CSCC)

Paula Gildner, Social Research Associate I (CSCC)

Kim Chantala, Biostatistician (CSCC)

Guisong Wang, Programmer (BIOS)

Chris Anderson, Business Manager (CSCC)

Tania Osborn, Administrative Assistant (BIOS)

Matt McGrievy, Systems Analyst (BIOS)

Dianne Mattingly, Research Associate (CSCC)

Ashley Britt, Social Research Associate II (CSCC)

Faculty Promotions

Dr. John Preisser, Research Professor

Dr. Donglin Zeng, Associate Professor

Dr. Fei Zou, Associate Professor

Faculty Resignations

Dr. Brian Neelon, Research Assistant Professor

Dr. Charity Moore, Research Assistant Professor

Dr. Mark Weaver, Research Assistant Professor

New Postdocs

Emil Cornea, under the direction of Dr. Amy Herring



The Bios staff participated in the Jingle Bell Jog on Friday, December 7th. For creative wear, they dressed up as menorahs and some wore dreidels in light of the Hanukkah season (December 5-12th).

Dunson Receives Mortimer Spiegelman Award

David Dunson won the 2007 Mortimer Spiegelman Award for an outstanding public health statistician under age 40. Mortimer Spiegelman was an important contributor to biostatistics in the areas of demography and public health. His sisters established this award in his memory, and Dr. Koch was instrumental in enabling a later endowment of the award. David is Senior Investigator at NIH/NIEHS and is an Adjunct Professor of Biostatistics at UNC who currently is supervising the dissertation research of some of our doctoral students. His contributions have included work in nonparametric Bayesian methods, hierarchical and latent variable models, and in statistical modeling of human fertility. Current UNC faculty who are past winners include Gary Koch (1974) and Danyu Lin (1999), as well as Chris Portier (1995).

Sen Honored at Conference in South Carolina

On October 11, Dr. Pranab K. Sen, the Cary C. Boshamer Professor in Biostatistics, was honored for his 45 years of post-PhD research in Statistics at a conference in Columbia, South Carolina, organized by the Nonparametrics Section of the American Statistical Association and the University of South Carolina. Also, a banquet on the 12th was specifically marked to celebrate Dr. Sen's 70th birthday. Provost Becker presented an introductory lecture at the banquet with emphasis on Dr. Sen's contributions and Malay Ghosh highlighted his work. At the end, Dr. Sen spoke on statistics and philosophy and was presented the cover pages of a Festschrift in honor of him, edited by Drs. Balakrishnan, Pena and Silvapulle. On 13th October at the University of North Carolina at Greensboro, the ASA NC Chapter, in conjunction with the Forum for Interdisciplinary Mathematics and Combinatorics, presented awards to Drs. Sen, J. Berger (Duke), and Dan. Solomon (NC State) for their achievements.

McKee Receives Excellence in Management Award



Evie McKee

BIOS is pleased to congratulate Evie McKee, one of two university-wide winners of the Excellence in Management Award. The Excellence in Management Award is designed to recognize meritorious and distinguished accomplishments in management at the University of North Carolina at Chapel Hill.

As noted in her nomination letters, "Evie's hard work, complete competence and willingness to do what is needed truly exemplify the scholarly mission of our Department, the School of Public Health, and the University of North Carolina. She provides incredible customer service to the research community in our department and truly manages our resources to optimize our accomplishments in research and funding."

"Over her 17 years of service at UNC, she has demonstrated that she is an outstanding manager and leader, provided outstanding management of financial resources, and built up effective infrastructure to facilitate grant submission and research administration."

"We very much appreciate Evie's devotion and dedication to our department, and we hope you give her your very highest consideration for this prestigious award."

"I cannot say enough about Evie. She is an extremely valuable and skilled business manager and is a real star at what she does."

Please join us in congratulating Evie McKee for her outstanding work.

Bios Births!

Donna Barton gave birth to a baby boy on Monday, Oct. 29th at 5:00 pm at UNC. William "Duce" Quincy Ross, III was born 3 weeks early, weighing in at 8lbs 2 ozs, 20 ½ inches long.

Diane Catellier and Annie McNeill welcomed Allison (7lb.) and Phillip (6lb10oz) on August 24th. Alison is older by 3 minutes.

Mike and Christina Pennell announced that Nathan Riley Pennell was born at 10:58 am on Saturday, October 6, 2007 at OSU Medical Center in Columbus. He weighed 6 lbs, 6 oz and was 19 inches long on his birthday.

Ben Saville and his wife are proud to announce the birth of their son, Tyler, on Saturday, Sept 22 at 7pm. He weighed 8 lbs. 2 ounces, and was 21 inches long.

Zishan Tahir Hyder was born to Salim and Munni Hyder on Monday, March 5th and weighed in at 8 lb 8 oz.

Binquing Zhou and husband welcomed their new son, Alex Wu, into the world on April 18, 2007. He weighed 8 lb 1 oz and was 20.6 inches long.

Donglin Zeng and his wife had a little boy, Colin, on September 26th. He weighed 8 lb 8oz.

Todd Schwartz announced that he is the proud father of another girl - Kendra Anne. She was born on August 14 and weighed in at a healthy 7 lbs.

2007 Biostatistics Award Winners



Pictured (l-r) are: Steve Cory, Monica Miles, Christine Kantner, and Melissa Hobgood

Melissa Hobgood, Registrar, was awarded the 2007 Staff Award for Excellence. Melissa was recognized for her outstanding performance as Registrar for the department. Her duties include, but are not limited to, organizing recruitment visits and alumni gatherings, finding student funding, and advising students on class selection. She is very involved with the students and works diligently to ensure that all their needs are met.

2007 Star Heels award winners were: Steve Cory (CSCC), Christine Kantner (SRU), Monica Miles (CSCC), Carolyn Hagy (CSCC), David Hill (Mc-G), Betsy Seagroves (Mc-G), Scott Zentz (Mc-G), and Bill McGee (CSCC). The Star Heels program, sponsored by TIAA-CREF, allows departments to award a \$25 gift certificate to a deserving employee.

Service Appreciation

5 Years

David Hill
Scott Zentz
Fred Wright
Joseph Ibrahim
Robert Agans
Terri Lewis
Lisa Gravens-Mueller

10 Years

William Mcgee
Haibo Zhou

15 Years

Aluoch Ooro
Jianwen Cai
Melissa Hobgood

20 Years

Deborah Williams
Dawn Stewart

25 Years

Lloyd Chambless
Paul Stewart

35 Years

Chirayath Suchindran

40 Years

Pranab K Sen
Gary Koch

STUDENT NEWS

Andraca Receives Amgen Fellowship

In January, 2006, the Amgen Dissertation Fellowship was established to provide support to an outstanding Ph.D. student in the Biostatistics Department. The purpose of the scholarship is to provide support to the awardee during the preparation of his/her dissertation, the topic of which must be related to methods applicable to pharmaceutical research. Students who have completed all of their course work for the PhD degree and have passed both the theory and applications portions of the doctoral qualifying exams are eligible for the fellowship. The fellowship was awarded for a second year to Eugenio Andraca Carrera. His advisor is Dr. Bahjat Qaqish, Associate Professor in Biostatistics.



Pictured (left to right) Lisa LaVange, Eugenio Andraca Carrera, & Michael Kosorok

Zhao Receives Award for Best Master's Paper

Yue (Sophie) Zhao was selected to receive the Regina C. Elandt-Johnson Award for Best Master's Paper. Zhao's master's paper topic was "Relative Importance Indices for Predictors in Multiple Linear Regression Analysis: A Review and Critique." The work combined both the theory of statistics and its application to real world public health problems, and a manuscript based on this work has been submitted for publication. The interest in this topic was motivated by problems in environmental health, in particular, the problem of how to quantify the relative importance of different exposures to biomarker levels in blood. Zhao's work was supervised by Dr. Lawrence Kupper.

2007 Graduates

May 2007

Jean Orelie	DrPH
Cynthia Bland Augustine	MPH
Henry "Tee" Bahnson	MPH
Kevin Brown	MS
Jonathan Gelfond	PhD
Xuguang Guo	MPH
Zhaowei Hua	MS
Karthi Natarajan	MPH

August 2007

Allison Deal	MS
Sonali Garg	MPH
Matt Gribbin	DrPH
Bevan "Emma" Huang	PhD
Sangwook Kang	PhD
Se Hee Kim	MS
Douglas McQuoid	MPH
Sola Park	PhD
Virginia Pate	MS
James Slaughter	DrPH
Yiyun Tang	MS

December 2007

Jackie Johnson	DrPH
John Kairalla	PhD
Munsu Kang	PhD
Hae-Young Kim	DrPH
Yufan Zhao	MS
Hyeon Park	MS

Delta Omega Awards

Delta Omega is a National Honor Society which exists to encourage research, provide scholarships, and recognize achievements in the field of public health. This year the following persons received honors from the Delta Omega Society:

Faculty: Dr. Michael Kosorok

Book Award: Arpita Ghosh

Alumni: Dr. Maura Stokes

Recognition of Service: Virginia Pate

Graduating Students: Dr. William Barry (PhD), YiYun Tang (MS) and Yue Zhao (MS)

BSPH: Sandy An

Bigelow Wins SPH and Bios Dissertation Awards



Bigelow (left) receives award from Dr. Kosorok, Chair.

Jamie Bigelow was this year's recipient of the Bernard Greenberg Dissertation Award and the Barry H. Margolin Award for Excellent Doctoral Research in Biostatistics. The Greenberg Dissertation Award is presented by the School of Public Health in recognition of an outstanding doctoral dissertation .

Bigelow's PhD dissertation research is titled "Bayesian semiparametric methods for functional data" and was under the direction of Dr. David Dunson, Adjunct Professor in the Department of Biostatistics. She is currently a visiting assistant professor in the statistics department at Duke University.

Dr. Bigelow's dissertation was motivated by applications to modeling of reproductive hormone trajectories within menstrual cycles in relation to predictors. This is a challenging problem for several reasons. First, cycles are of random length and timing relative to the start of the cycle, and ovulation and the end of the cycle are all informative about the hormone levels. In addition, there is dependence in multiple cycles from a woman.

Current methods for analysis of hormone data in menstrual cycles either focus on a narrow window of time around ovulation or standardize cycles to a fixed width, which ignores timing of ovulation and information in the cycle length. In addition, predictors and heterogeneity are typically introduced in a restrictive manner by shifting the mean hormone level up or down.

Jamie developed several novel methods for addressing these problems. These methods add substantially to the statistics literature on approaches for analysis of functional data. In addition, the methods are truly motivated by the reproductive epidemiology application and make a real substantive difference in interpreting data considered so far.

Johnston Recipient of Research Award

The James M. Johnston Center for Undergraduate Excellence awarded Meredith Johnston an Honors Undergraduate Research Award for her thesis "Oxytocin Receptor-Expressing Neuron Activation During the Onset of Maternal Behavior: Location and Quantification" for oxytocin and c-fos antibodies. Johnston's advisor is Dr. Robert Hamer.

Financial support for expenses related to the senior Honors thesis is available on a competitive basis through the Honors Undergraduate Research Awards. Honors Undergraduate Research Awards may be used to support any legitimate cost directly connected to the undertaking of an Honors thesis project.

Biostatistics Travel Mugs For Sale!

16 oz. Stainless Steel Travel Mug, "UNC Biostatistics" imprinted in Carolina Blue, \$10.00 per Mug, \$5.00 Shipping for the first Mug, \$2.50 each additional Mug **(If you would like to pick up your mug or if you have any questions, contact dustinl@email.unc.edu.)**

Name: _____
 Email: _____
 Address: _____

Please Make Checks Payable to: **Biostatistics Student Association**

Mail this form and payment to:

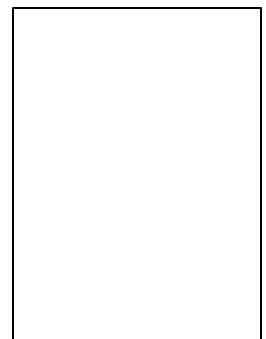
UNC-Chapel Hill, Department of Biostatistics

Attn: Melissa Hobgood

3103 McGavran-Greenberg, CB#7420

Chapel Hill, North Carolina 27599-7420

I would like to make a tax-deductible donation to BSA in the amount of \$_____. My separate check is enclosed.



Pennell Wins Kupper Dissertation Publication Award

Mike Pennell received the Kupper Dissertation Publication Award. Dr. Pennell's paper, "Bayesian semiparametric dynamic frailty models for multiple event time data," appeared in *Biometrics* in 2006 and was completed as part of his dissertation, which focused on developing semiparametric Bayesian methods for random effects modeling of time to event and longitudinal data. The dissertation was completed under the direction of Dr. David Dunson.



Pennell (left) is pictured here with Dr. Michael Kosorok, Chair of Biostatistics.

Dr. Pennell's paper addressed the problem of allowing for an unknown frailty distribution, which changes dynamically as a subject ages. The typical time-constant frailty assumption is not biologically realistic in many applications, as an individual who is highly susceptible at young ages may not be highly susceptible to the same type of event at later ages. His work was directly motivated by studies of cancer prevention. In particular, researchers routinely use animal models to investigate the chemopreventive effects of chemicals, drugs, and compounds naturally occurring in the diet. A common design exposes a rodent to a high dose of a potent carcinogen, which is then followed by treatment with a test agent. Tumors in the skin or breast are then recorded as they reach a detectable size. It is of interest to assess whether treatment

with the test agent results in a reduction in the number of induced tumors and the rates of growth of these tumors. Very similar data are collected in many types of biomedical studies and are commonly referred to as panel counts.

Motivated by this application, Dr. Pennell developed a dynamic frailty model, which should be broadly useful. The widely used shared frailty proportional hazards model is generalized to allow subject-specific frailties to change dynamically with age while also accommodating nonproportional hazards. Parametric assumptions on the frailty distribution are avoided by using Dirichlet process priors for a shared frailty and for multiplicative innovations on this frailty. By centering the semiparametric model on a conditionally conjugate dynamic gamma model, we facilitate posterior computation and lack-of-fit assessments of the parametric model. The proposed method is demonstrated using data from a cancer chemoprevention study.

The Kupper Dissertation Publication Award is given annually to recognize an outstanding doctoral student and his or her dissertation advisor for the best doctoral dissertation-based paper appearing in a prestigious biostatistical journal.

Zhou Awarded Max Halperin Scholarship

Bingqing Zhou, a second year doctoral student in the Department of Biostatistics, was the recipient of the Max Halperin Scholarship Award in Biostatistics. Zhou joined the UNC Biostatistics department in the fall of 2005 with two Master's degrees in Applied Statistics and Economics from Bowling Green State University.

The Halperin award is named in honor of Dr. Max Halperin, who was a graduate of the UNC-CH Department of Statistics. It is designed to encourage the development of young biostatisticians.

2007 Student Awards



*Denise Shortino (left) of GlaxoSmithKline presents
Chelsea Erickson (right)
the GlaxoSmithKline Scholarship*

and made possible by gifts to the Public Health Foundation by the family of Noel Mohberg.

Alison Wise received this year's Fryer Award, given by the Department of Biostatistics and made possible by contributions of John and Diane Fryer. Alison also received the School of Public Health's Ibrahim Award as well as a Merit Award from the Graduate School.

Matthew Matheson won the Greenberg Scholarship, an award offered to outstanding applicants by the Department of Biostatistics as a supplement to a traineeship or graduate research assistantship. This scholarship is named for Bernard G. Greenberg, founder and former chair of the Department of Biostatistics, and is made possible by generous contributions by the Greenberg family and friends. Matthew also received a Merit Award from the Graduate School.

Elana Bordonali has been awarded the Mohberg Award. This award is offered to an outstanding applicant to the Department

Xia He received the David and Lucy Hardison Scholarship, offered to an outstanding applicant to encourage studies in bioinformatics in the department. This award is made possible by the gifts of the Hardison family.

Chelsea Erickson received the GlaxoSmithKline Scholarship, made possible by a GlaxoSmithKline donation to an applicant chosen by the department. Chelsea also received a Merit Award from the Graduate School.

BSA has Active Year



The Biostatistics Student Association (BSA) has had a busy but successful year. We've worked on a Habitat for Humanity House (see picture to left), had a student night at the Durham Bulls (minor league baseball), collected toys for the Toys for Tots Drive, raised over \$1,200 for Relay for Life (A Cancer Research Fundraiser), won the intramural volleyball championship, and are currently in the lead for the Carolina Intramural Sports Participation Award. We're still selling UNC Biostatistics travel mugs (\$10 each plus shipping and handling) and we've already started fundraising for this year's Relay for Life. If you're interested in purchasing a travel mug, donating to Relay for life, or just learning more about the

Biostatistics Student Association, please contact one of our officers listed below! Thanks to all of you who have purchased a mug or supported the Biostatistics Student Association.

Beth Horton (beth.jablonski@gmail.com) or **Annie Green Howard** (aghoward@email.unc.edu), Co-Presidents

Jennifer Clark (jinjinclark@gmail.com), Secretary

Dustin Long (dustinl@email.unc.edu), Treasurer

Students Make Presentations at ENAR and ASA Joint Statistical Meetings

The following Bios students made presentations at the ENAR meeting in March 2007:

- Jonathan Gelfond, "Proximity Model for Expression Quantitative Trait Loci (eQTL) Detection.," Authors: Jonathan Gelfond, Joseph G. Ibrahim, and Fei Zou
- Emma Huang, "Efficient Association Mapping of Quantitative Trait Loci with Selective Genotyping," Authors: Emma Huang and Danyu Lin
- Chris Slaughter, "Bayesian Modeling of Embryonic Growth using Latent Variables," Authors: James Slaughter, Amy Herring, and Katherine Hartmann
- Xiaoyan Wang, "Accelerated Failure Time Marginal Means Models for Recurrent Events with a Terminal Event," Authors: Xiaoyan Wang and Jianwen Cai
- Matt Gribbin, "Power Confidence Intervals for the Univariate Approach to Repeated Measures," Authors: Matt Gribbin, Keith Muller, and Jackie Johnson
- Hyunsoon Cho, "Bayesian Case Influence Diagnostics for Survival Models," Authors: Hyunsoon Cho, Joseph G. Ibrahim, Debajyoti Sinha, and Hongtu Zhu
- Yu-Ling Ching, "An Approximate Bayesian Approach for Quantitative Trait Loci(QTL) Estimation," Authors: Yu-Ling Ching, Fred Wright, and Fei Zou
- Hae-Young Kim, "Multidimensional Array-based Group Testing in the Presence of Test Error," Authors: Hae-Young Kim and Michael Hudgens
- Ben Saville (poster presentation), "Testing Random Effects in the Linear Mixed Model using Bayes Factors," Authors: Ben Saville and Amy Herring
- Eugenio Andraca-Carrera, "Random cluster size, within-cluster resampling and generalized estimating equations," Authors: Eugenio Andraca-Carrera, Bahjat Qaqish, and John Preisser
- Ju-Hyun Park, "Nonparametric Bayes Structural Equation Models for Multivariate Data," Authors: Ju-Hyun Park and David Dunson
- Pingping Qu, "Statistical Methods for the Discovery of Gene Regulatory Networks," Authors: Mayetri Gupta, Pingping Qu, and Joseph G. Ibrahim
- Denise Esserman, "Shared Frailty Models for Jointly Modelling Grouped and Continuous Survival Data," Authors: Denise A. Esserman and Andrea B. Troxel

The following Bios students made presentations at the Joint Statistical Meetings of the American Statistical Association in Salt Lake City, Utah in August 2007:

- Allison Deal, "Some Statistical Issues in Adapting Sample Designs for Surveys Requiring Rapid Response," Authors: Allison Deal and William Kalsbeek
- Ben Saville, "Testing Random Effects in the Linear Mixed Model using Bayes Factors," Authors: Ben Saville and Amy Herring
- John Kairalla, "An Internal Pilot Study with Interim Analysis for Gaussian Linear Models," Authors: John Kairalla, Keith Muller, and Christopher S. Coffey
- Li Chen, "Analysis of Longitudinal Data with Informative Dropout," Authors: Li Chen and Donglin Zeng
- Jackie Johnson, "Test Size for Two-Stage and One-Stage Analyses of Cluster Samples of Unequal Size," Authors: Jackie Johnson, Diane Catellier, and Keith Muller
- Yu-Ling Chang, "A Fast Bayesian Method for eQTL Linkage Analysis in Experimental Crosses," Authors: Jinze Liu, Fred Wright, Fei Zou, and Yu-Ling Chang
- Yeonseung Chung, "Nonparametric Bayes Local Regression and Variable Selection," Authors: Yeonseung Chung and David Dunson
- Moonsu Kang, "False Discovery Rate in Microarray Studies," Authors: MoonsuKang and Pranab K. Sen
- Che Smith, "Use of Beta Regression to Model Adherence to HIV Medication," Authors: Che Smith, Yin Yin, Sharon Murray, and Steven Kathman

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