University of Nebraska-Lincoln Department of Statistics Newsletter

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Student presenters at JSM, p. 4
From the Chair's desk, p. 2
                                                                               Alumni news, p. 5
Stats and facts, p. 2
                                                                             New in Lincoln, p. 6
Recent graduates, p. 3
                                   presentations
                                                   position
                                kendra given
                                                                               New at UNL, p. 7
Statistics Graduate Student
                                                     fellowship
                          talk hall programs presenting parents
Association, p. 3
                                                                               Faculty news, p. 8
                         demands
Graduate fellowship, p. 4
                         fact design sciences
                                                                                Thank you, p. 9
                                                    main activities sampling
                    napl
Student awards, p. 4
                                                    program foundation
                              three continues
                     grant receive august east analysis published
                                                             bilder company
                      g science lincoln
        respect
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May 2014
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Contributors: Members of the Department of Statistics
R code for the word cloud is available at
http://chrisbilder.com/wordcloud

From the Chair's Desk



to drink from a fire hose. While ly over the coming years. colorful and not inaccurate, that's not the analogy I would

use. I'm continually impressed by the diversity of demands a department has and how important it is that our responses to these demands must mesh smoothly. As I see it, digital compression is a better analogy for the 21st century Statistics Department: We are continually discovering how to receive, process, and send larger and larger amounts of information and acquiring the ability to do so.

So what's happened since August 1 of last year? First, we had an Academic Program Review (APR). Every five to seven years, each academic department is evaluated by a team of three to five external people. The idea is that the Department writes a study of its own situation, the team reads this, visits for, say, three days, and peers into every nook and cranny of foresee. Department functions to assess what's working well, what's not working as well as it should, what's being done that needn't be done, and what's not being done that should. The APR team has issued their report and now we are formulating our response. A few highlights: We hope to start an undergraduate program in statistics in the coming years. We want to revamp some aspects of our graduate programmaybe merge some courses that are too close, maybe bring out courses in areas where we have little presence. We may want to focus more on a few key areas of statistics. At present, we're scratching our heads as to what to do next.

Our best wishes for success go to Dr. Dong Wang who left the

Let me begin by thanking Steve Department for a new job at Dow AgroSciences. He will run a Kachman who served for three unit there, overseeing about a dozen other statisticians and years as Interim Chair. His term other scientists. All of us are sad that he left-but the fact that officially ended on July 31, major research groups want to scoop our talent is a comple-2013, and I started on August ment. The Colleges of Arts and Sciences and Agricultural Sci-1, 2013. One former depart- ences and Natural Resources immediately recycled Dong's ment chair, not from Statistics, position back to us. This, along with two hires that we have compared being Chair to trying been promised, means that the Department will grow smart-

> As the academic year has proceeded, I have been impressed by everyone's willingness to help with the demands and challenges of moving the department forward while maintaining all our commitments. I thank the graduate students who are doing fine work to ensure department morale and recruitment efforts have remained high. Many have given presentations at conferences to help keep and build the reputation of UNL. I thank the faculty who have gone the extra miles (or, more accurately, time zones) to give short courses, recruit new graduate students, help me acclimatize to UNL, or just generally publicize the work being done here to statisticians and subject matter researchers. To all of these people I say, again, thank you—and keep going! By consistently supporting each other, we will achieve more than we can imagine or

There is much more to say, but let me conclude with this: The Department of Statistics at the University of Nebraska-Lincoln has the potential to be in the vanguard of developments in our field. We have a golden opportunity to revamp our graduate programs, develop a whole new undergraduate program that is rooted in the present century rather than the past, and be leaders in emerging areas of statistics. In some senses, the field of Statistics has changed faster than most statistics departments, and because we don't carry so much burden of the past, we can leapfrog ahead of many of our peers. Just watch us!

Bertrand Clarke

Stats and Facts About the Department

- Established July 1, 2003, through a merger of the Depart- 14 faculty ment of Biometry and the Statistics Division of the Depart • 67 graduate students ment of Mathematics and Statistics
- Office space is in the third floor of Hardin Hall (north 3,187 credit hours taught (fall 2012) wing), third floor of Biochemistry Hall, and the second • 1,075 student registrations (fall 2012) floor of Avery Hall

- 3 support staff

Recent Graduates and Current Jobs

MS

Casey Blaser

Matthew Garai — Employed at First National Bank of Omaha

William Garver — Adjunct Instructor of Biostatistics at Doane College

Natalie Koziol — PhD student in Educational Psychology at UNL

Ye Li

Zhen Liu

Nathan Ngo — Assistant volleyball coach at Portland University

Ed Rubin — PhD student in Agricultural Economics at the University of California-Berkley

Jason Rubbert — SAS Programmer/Analyst at CrossUSA

Adam Schapaugh — Research Statistician at Monsanto

Darin Schopen — Market Analyst at Associated Bank

Jiang Shu — Graduate student in Computer Science at UNL

Bradley Smith — PhD student in Educational Psychology at UNL and Graduate Manager for the Husker baseball team

Peibei Sun

Ping Yang

PhD

Michael Black — Assistant Professor at the University of Wisconsin-Platteville

Chris Wichman — Director of Biostatistics at Creighton University

Statistics Graduate Student Association

It has been a busy school year for the Statistics GSA! Students got off to a great start this fall by spending the afternoon mini-golfing (see picture to right) together at Lincoln's Adventure Golf Center. In addition to the pop sales fundraiser (which is still going strong!), students sold custom Department of Statistics travel mugs to raise money for events. During the spring semester, activities have included skating at the Ice Box and visiting the Starlite Lounge to unwind for some happy hour fun!

Statistics students have also been active in the UNL community, representing the Department at the Women in Math Conference in January and the Women in Science Conference in February (see picture below).





The officers of the Statistics GSA are

• President: Aimee Schwab

• Treasurer: Danielle Wilson

• Faculty Meeting Representative: Julie Couton

• UNL GSA Representative: Cyrille Nzouda



Graduate Fellowship

The Department of Statistics has created a fellowship to rec- from a Bayesian prospective. This work continues the contriognize the outstanding academic achievements, statistical butions made by Dr. research accomplishments, and departmental/university ser- Stroup and his past vice of students in the Department of Statistics. All full-time PhD students in the students enrolled in the MS or PhD programs of the Depart- area. ment and who have a permanent academic advisor are eligible. The first recipient of this fellowship is Marina Ptukhina. Marina is from Kharkiv, Ukraine, and came to Nebraska after earning an MS in mathematics from Texas Tech University. While at Nebraska, Marina has been a TA for STAT 218, 801, and 802. She is now working on her PhD under the guidance of Dr. Walt Stroup. Her dissertation research involves developing methods to estimate the shelf life of a drug product

Marina will receive \$750 and have her name inscribed on a plaque in the department's main office.



Student Awards

Elizabeth Claassen won a Holling Family Award for Teaching The UNL Parents Association honored Pavel Chernyavskiy (in Kate introduced Elizabeth at the award ceremony with the Pavel's excellent work as an instructor for STAT 380. following:

If any of you have every taken a stats class and had Elizabeth as your TA, you at least know enough to say that she is a far out outlier from the normal distribution of TAs ... Because of Elizabeth's high level of enthusiasm for teaching, her teaching style is one that naturally facilitates interest and understanding, even of complex material.

This is the second time in the last three years that a TA from our department has won the award! Pamela Fellers, a current PhD student, won the award in 2012.

Excellence in CASNR this spring. This award is given to TAs the middle of the picture below) with its Parents' Recognition and faculty to recognize excellence in teaching. With the Award this spring. Parents and/or students nominate those award, Elizabeth received a \$1,000 stipend. SNR graduate TAs and faculty who have made a significant contribution student Kate Lawry nominated Elizabeth for the award, and toward a student's education. This award was made for



Student Presenters at JSM

If you are attending JSM in August, please attend these presentations by our students!

- Brianna Bright is presenting "Evaluating the performance of simultaneous stepwise confidence intervals for the difference between two Poisson rates"
- Pavel Chernyavskiy is presenting "A quantitative approach to the diagnosis of head injuries through a spatiotemporal model of the electrophysiological assessment of
- working memory"
- Brianna Hitt is presenting "Using ROC curves to evaluate diagnostic tests: an exercise in teaching through replicating research"
- Aimee Schwab is part of a panel presentation entitled, "Using a virtual island population to teach statistics, epidemiology, clinical trials and more"
- Lynette Smith is presenting "Spatial prediction of Poisson response variable with covariate"

Alumni News

Jeremy Bergmann (MS 2007) has started a position as the thoroughly engrossed with fishing and hunting, and will soon Business Intelligence & Analytics director of Offwire, a small be taking a driver's education class! In April 2013, Tricia marwireless accessory distribution company in Omaha. With the ried Steve Bryski, who is an enterprise technical support anahelp of data analytics, Offwire's business plan is to grow the lyst for Dell networking and also a hunting enthusiast. They company rapidly. In fact, Jeremy has already contacted the department about employing our new graduates along with current students as interns. Jeremy is also a husband and father of two beautiful girls, Madeline and Lillian. They are both very big Husker fans. Maddie (and Jeremy) loves the football tickets that Dr. Bilder has shared with the Bergmann family over the last 3 years!

Jenny Green (PhD 2010) and her family moved in 2013 all the way from Lincoln to Bozeman, MT. Jenny then began her new job as an Assistant Professor in the Department of Mathematical Sciences at Montana State University! While at Montana State, Jenny has already received two grants, including one from the National Science Foundation. Jenny and her family also became first time homeowners and enjoy their mountain views from their new home!

Leanne (Hicks) Marshall (MS 2008) and her husband live in Waverly. Leanne works for First National Bank of Omaha as the Director of Bankcard Portfolio Credit Risk. They are proud parents of a daughter, Alexa (2½ years old), and will be welcoming a new addition to the family this spring! Family trips to Hawaii and Disney World were big hits among all family members over the past year.

Woonyuen Koh (PhD 2009) and Chunhao Tu (PhD 2009) were married in 2009. In June 2012, they welcomed a daughter, Amelia, into their family! Both Woonyuen and Chunhao are Assistant Professors at the University of New England. Woonyuen works in the Department of Mathematical Sciences, where she teaches both lower- and upper-level undergraduate statistics courses. Chunhao works in the Department of Pharmacy Practice and teaches Biostatistics and Advanced Biostatistics courses to pharmacy students.

Tricia (Larson) Bryski (MS 2005) has been working in the Twin Cities since graduation. She has worked at Boston Scientific as a Biostatistician and Deluxe Corporation as a Marketing Statistician. Tricia recently accepted a new position at Olson as a Senior Analyst. She's excited to venture into more of a consulting capacity in the realm of digital marketing, while also having an office next door to Target Field, home of the Minnesota Twins. Her son Brian (BJ), who was in kindergarten in Lincoln, is now in high school. He plays football, is

are kept busy with the latest addition to their family, a spunky yellow Labrador retriever puppy named Missy.

Bixia Liang (MS 2009) made the cross country move with her family a few years ago from California to New York, where she now works as a Data Analyst for the City University of New York. Bixia has two young children (4 and 7 years old) that keep her busy too!

Megan (Liedtke) Tesar (PhD 2011) and her husband Dan welcomed their first child, Eli James, on February 22, 2013! Prior to his birth, Megan was an Elementary Statistics instructor at Southeast Community College in Lincoln but has since put her career on hold to be at home with her son. Her paper entitled "Is a Major League hitter hot or cold" was published in the fall 2013 edition of The Baseball Research Journal.

Michelle Quinlan (PhD 2010) has been at Novartis Oncology in East Hanover, NJ, since graduation and was recently promoted to Senior Principal Biostatistician. Michelle works in the Clinical Pharmacology Biostatistics Department, which focuses on PK studies and PK/PD modeling. Outside of work, she continues to run and plans to run her first marathon this spring.

Kendra Schmid (PhD 2007) has been at the University of Nebraska Medical Center since graduation. In 2012, she was appointed as the Director of Master's Programs for the College of Public Health, and was promoted to Associate Professor in 2013. Also in 2013, Kendra was part of a group funded to conduct a multi-site clinical trial in emphysema patients, where she serves as head of the Data Coordinating Center for the trial. Outside of work, Kendra keeps busy spending time with her husband Tadd and three children aged 4, 11, and 12.



Alumni News (continued)

education research! One paper published in the Journal of 2013. Finally, she will be giving an invited talk at the Interna-Statistics Education in March 2013 involved work with an tional Conference on Teaching Statistics in July 2014. undergraduate student on assessing the usefulness of an activity for students. In addition, she has been doing research to determine the role of context as it applies to students' understanding of sampling. Some of this work was published

Jackie Wroughton (PhD 2007) has been busy with statistics in the Statistics Education Research Journal in November

Boan Zhang (PhD 2012) has been working on Phase II/III clinical trials for Merck's new all-oral interferon-free regimen to cure chronic Hepatitis C infection. He works out of the North Wales, PA (suburb of Philadelphia) offices for Merck.

We want to hear from you! If you have news about personal/family events or how you are doing professionally, please share these items with us. Send your updates via e-mail to Stacey Herceg (sherceg2@unl.edu) in our main office or Dr. Chris Bilder (cbilder3@unl.edu).

New in Lincoln

changed. New apartments, hotels, restaurants, and an ice hello! skating rink have been built. The first entertainment district in the state of Nebraska, called the "Railyard" (see picture below), now exists there too.

The arena has also brought in many new events to Lincoln, including concerts by Jay-Z, Pink, the Eagles, and Elton John, along with the NCAA women's basketball regionals. Many

With the Pinnacle Bank Arena opening in the Haymarket (see other concerts and events are scheduled for the future, so page 7), the north side of the Haymarket has greatly plan a trip to Lincoln and also stop by the department to say

> East of downtown on "O" Street, a new office/shopping development has been built where the former Lincoln Public Schools (LPS) administration building was located before it burned down. A new LPS building is now there with stores such as Whole Foods (see picture below), Jos. A. Bank, and Massage Envy Spa.



New at UNL

There have been a number of new additions to the athletic facilities this year. East Stadium has seen an addition to expand the capacity of Memorial Stadium to over 91,000. With this addition, new academic space was also created for the Center for Brain, Biology, and Behavior, and for the Nebraska Athletic Performance Laboratory (NAPL). Dr. Dave Marx has been making research connections with the NAPL, and two of his students, Tucker Zeleny and Pavel Chernyavskiy, are working on projects for the NAPL.



Another dramatic change to the city skyline is the new Pinnacle Bank Arena (PBA) located on the northwest corner of the Haymarket (see picture above). The arena seats over 15,000, and it's where the basketball teams play their home games. All men's games were sold out this season, and the great atmosphere at games helped both the women's and men's teams earn NCAA Tournament appearances. The PBA is also the new home to UNL graduation ceremonies. In fact, the first event to take place in the arena was the summer graduation ceremony for graduate students. This included new PhD statistics graduates Michael Black and Chris Wichman expanded. When complete in 2015, it will contain twice the participating with their advisors Dr. Chris Bilder and Dr. Dave square footage of the original building. Marx, respectively.

With the basketball teams moving out of the Devaney Cen- are being torn down and new buildings are going up. The first ter, this allowed for a complete remodeling of its arena por- new buildings are scheduled to open in June.

tion of the building. The gymnastics teams and the wrestling team still call the facility home (see picture below from "Tumble and Rumble"), but now the volleyball team uses it as well. Even with the larger number of seats for volleyball (over 8,000, including skyboxes), their sell-out streak increased to 196 matches. For the first time, the volleyball team became a revenue generating sport.

On East Campus, the dilapidated Activities Building (a.k.a., the "east campus rec") is finally being remodeled and also

On Innovation Campus (the old State Fairgrounds), buildings



Faculty news

Dr. Chris Bilder (please call him "**Chris**") has been experimenting with a blended learning environment for his courses. This has involved "flipping" the classroom so that students can watch pre-recorded videos of lectures prior to class. He subsequently meets with students in a classroom once per week for a question/answer session and to go over additional content that he would not have time for otherwise. With respect to research, he has co-authored papers published in *Biometrical Journal, Biometrics, Biostatistics,* and *Statistics in Medicine* during 2013. Specifically for the *Biometrics* paper, Chris will receive the ASA Outstanding Statistical Application Award during JSM 2014 (Sunday evening ceremony). Finally, his new *Analysis of Categorical Data with R* book will be published by CRC Press in July—just in time to pick one up at JSM! You can follow him on Twitter @Chris Bilder.

Dr. Bertrand Clarke's official start date at UNL was August 1 as the new Chair for the department. A few days later, he was at JSM 2013 in Montreal giving a presentation on analyzing metagenomic next-generation sequencing data. Later in December, he gave an invited comment on a paper at the Objective Bayes Workshop at Duke University. At the upcoming JSM 2014, Dr. Clarke will receive the high honor of becoming a Fellow of the ASA! This honor is limited to only 1/3 of 1% of all members per year, and it will be given in a ceremony on Tuesday evening. With respect to service, Dr. Clarke is on the JSM 2014 Program Committee for IMS contributed and topic contributed sessions and is serving on the Lindley Prize Committee for the International Society for Bayes Analysis. On a personal news front, Bert and his wife Jennifer (see below) closed on a house in August and have been getting their kids acclimatized to life in Lincoln, which is quite different than life in Miami where they had lived prior. Also, the Clarkes hosted the annual departmental holiday party and look forward to doing so again in the future.

Dr. Jennifer Clarke also started at UNL in August. She is an Associate Professor in the Department of Statistics and the Department of Food Science and Technology, while also serving as the Director of UNL's new Computational Sciences Initiative (CSI). CSI is a campus-wide initiative to recruit and develop resources in both research and education related to "big data" sciences. Dr. Clarke is also active in developing new degree programs at UNL. In particular, she is working on a new undergraduate program in informatics, involving faculty from across UNL (especially Statistics and Computer Science and Engineering) and on the development of an Inter-

disciplinary PhD program in Bioinformatics.

Dr. Kent Eskridge continues to focus on the design of experiments and biological modeling. Some of the research areas that he and his students are working on include causal structures, adaptive designs, design and analysis of surveys using group testing methods, and survey analysis in the presence of informative sampling. With respect to teaching, he has taught advanced design of experiments, applied multivariate methods, linear models, theory of design, and multivariate theory. He also continues to work with subject-matter researchers in areas including plant genetics and pathology, biology, engineering, remote sensing, and environmental health.

Dr. Istvan Ladunga presented a talk at the Genomics-2013 Conference in Chicago. He reported biostatistical analyses of 45 million transcription factor binding sites in the human genome. He and his team, including GRA Jiang Shu, discovered large-scale ensembles of regulators that finely orchestrate the expression of ~200 genes dispersed across all human chromosomes.

Dr. Allan McCutcheon has continued to direct a University team of researchers on a 5-year NSF/Census Research Network grant (www.ncrn.info) focusing on improving data collection methodologies for the 2020 Census, as well as data collection by other governmental agencies. His other activities include teaching courses and workshops on surveys and categorical data analysis at Catholic University in Leuven, Belgium; Concordia University in Montreal, Canada; Istanbul University in Turkey; and the University of Essex in the United Kingdom. He was also appointed to a 2-year term on the Methodology, Measurement, and Statistics Advisory Panel of the National Science Foundation.

Dr. Julia Soulakova's main research focus has shifted from biopharmaceutical statistics to survey sampling since 2012 when she received a grant from the National Cancer Institute. Her research team works on assessing recall bias in the reported history of smoking behaviors. As a result of their work, they have submitted 2 grant proposals, written 7 papers, and made 5 presentations. At JSM 2013, Julia participated in the new SPEED sessions (5-minute talk followed by a 2-hour electronic poster). Julia has also fostered collaborative ties with the School of Nursing at the University of Nevada-Las Vegas and has served on a NSF grant proposal review panel.

Thank You

The next time you are in Lincoln, please stop by the department for a visit! We also encourage you to give a seminar (Dr. Eskridge promises not to ask tough questions!) about what you think is important for a statistics graduate student to learn and participate in as a student. If your company or organization is looking to hire new statistics graduates, please e-mail us and we would be happy to distribute an announcement to the graduate students.

Our successes are due to the alumni and friends of the Department of Statistics. Private support is vital to ensure a vibrant future for our department because state support for UNL (and universities across the country) continues to decrease. Please consider making a donation to the Department of Statistics Development Fund (01088740) at the University of Nebraska Foundation. Specific information is below. All funds go toward the support of students and faculty in the department. For example, we use these funds to support student trips to conferences, to recruit students, and to provide recognition of faculty and students.

Yes, I/we would like to support the Department of Statistics Development Fund.	Please submit your gift online, by
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The University of Nebraska Foundation is an independent, nonprofit organization raising private gifts to support the University of Nebraska. In 2013, donors provided \$236.7 million for scholarships, research, academic programs, faculty, and facilities. The foundation's comprehensive fundraising campaign, the Campaign for Nebraska, concludes December 31, 2014.

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If you prefer to receive future editions of this yearly newsletter via e-mail rather than through the USPS, please send an e-mail to Stacey Herceg (sherceg2@unl.edu) in our main office.



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