



GREETINGS FROM OUR DEPARTMENT HEAD, DR. ERIC SMITH



The 2006-07 year was quite an exciting year. I served as interim department head and, with the help of Geoff Vining, was able to learn the ropes, discover that being department head is quite different from being a faculty member, and have had a lot of fun in working to better the department. I would like to share with you some of the things I found exciting about the last year.

We continued to be blessed with great students. We currently have around 70 graduate students and 45 undergraduate students. This fall we held a commencement ceremony (thanks to a bit of encouragement from the graduating students) that was great fun. It included a short ceremony and a pot luck lunch. The department graduated 6 students with Ph.D.'s and 14 with Masters degrees.

In the spring, we held our regular ceremony in Hillcrest Hall. I believe it is one of the best attended ceremonies we have ever had; the room was full of happy graduates, their families and friends. Ten undergraduate students received their bachelors degrees. It was a wonderful undergraduate class with two students graduating cum laude and two graduating magna cum laude. Several of the students will be attending graduate school.

Our graduate students have distinguished themselves in other ways. They continue to attend meetings and present the results of their research. Shannon Fraker has won two awards from societies for her presentations. One of the highlights of the year was our recruiting. This year we added four new faculty members: Inyoung Kim, Scotland Leman, Dong-yun Kim, and Feng Guo. Take a look at their short biographies and I think you will agree that we have a lot to look forward to in the coming years. We are also happy to have Ying Liu from Kansas State visiting the department in 2007-08.

Our faculty members continue to receive honors and excel in teaching, service, and research. They continue to have various editorships, memberships on committees of national organizations, and other service. This year Bill Woodall received the Brumbaugh Award for his paper on the use of control charts in health care monitoring. Geoff Vining was given the Lloyd Nelson Award for the paper published in the Journal of Quality Technology that is having the greatest impact on practitioners. Congratulations to both for jobs well done.

Our Corporate Partners program continues to flourish. We have added two new members this year (Capital One and Becton Dickinson Diagnostics). The Partners provide valuable support to the department to help with recruiting. We look forward to the annual visit as an opportunity to show off our students, discuss how we can adapt our program to changes in industry and discuss new initiatives. We thank them for their support of our department.

Three of our faculty will be departing this year. Dan Spitzner will be heading to the University of Virginia. Mike McGill will be departing his instructor job. Bob Schulman has decided to retire after 33 years at Virginia Tech. Current and former faculty and staff joined Bob and his wife Debby in a dinner and celebration. If any of you had a class from Bob, you will remember his high quality teaching. We also remember his organizational skills and his willingness to take on new tasks (such as the Consulting Center). He will be greatly missed.

In addition to our good news, most of you are aware of the tragedy on campus on April 16. While the event will have a lasting effect, we were amazed at the outpouring of concern and well wishes from our alumni and colleagues from other universities. We are blessed to have so many friends.

PEOPLE

WELCOME



Pang Du joined the department as an Assistant Professor in August 2006 after getting his Ph.D. in Statistics from Purdue University. He also received an M.S. in Statistics from Purdue University in 2003, an M.A. in Mathematics and an M.S.E. in Computer Science from the Johns

Hopkins University in 2002, and an M.S. and B.S. in Mathematics from the University of Science and Technology of China in 1999 and 1996 respectively. Dr. Du's current research interests include nonparametric statistical models, spline and kernel methods, lifetime data analysis, ROC curve analysis, and spectral analysis.



John-Paul Dunning is joining us as Webmaster and Windows System Administrator. He is a recent graduate of the Computer Science Department. John-Paul has started graduate school this fall.



Joining us this Fall as an Assistant Professor is **Feng Guo**. He received his Ph.D. in statistics from the University of Connecticut in 2007. Dr. Guo has worked as a graduate research assistant since 2000 at the University of Connecticut. His research interests include Bayesian hierarchical models, spatial statistics, freight transportation modeling, traffic safety, and statistical genetics.



Dong-Yun Kim also joined the department this Fall as an Assistant Professor. She received her Ph.D. in statistics from the University of Michigan in 2003. Dr. Kim was a Visiting Assistant Professor at Michigan State University since 2005 and was also an Assistant Professor at

Illinois State University since 2003. Her research interests include statistical genetics, bioinformatics, sequential analysis, and change-point inference.



Inyoung Kim, an Assistant Professor, is another new faculty member this Fall. Dr. Kim received her Ph.D. in statistics from Texas A&M in 2002 and her Masters in applied statistics from Yonsei University. She has been working as a postdoctoral research associate at Yale University since July 2005. Her research interests include semiparametric/nonparametric modeling using regression/smoothing splines, nonlinear-linear mixed effect modeling, Bayesian modeling and computation, survival analysis, biostatistics and bioinformatics.

Also joining us in August 2006 as an Instructor was **Marlow Lemons**. Mr. Lemons completed a B.S. in Mathematical Science from Georgia Southern University in 2001, and an M.S. in Statistics from the University of Georgia in 2003. He then completed two years of continuing education in mathematics at Northern Illinois University. While there, he served as an Instructor at Kishwaukee College and Waubensee Community College. Marlow then worked as a statistician with the U.S. Census Bureau. His greatest achievement there was his contribution to the quality assurance software that will be used for Census 2010. Mr. Lemons' interests are contingency table analysis, nonparametric statistics, and SAS programming. He is currently completing his Ph.D. in Educational Research and Evaluation at our university.



Also joining us as an Assistant Professor in the Fall is **Scotland Leman**. Dr. Leman received his Ph.D. and Masters in statistics from Duke University. He comes to us from Duke, where he has been a teaching assistant since August 2003. His research interests include Bayesian statistics, statistical genetics, epidemiology, large scale stochastic simulation, molecular evolution and Markov Chain Monte Carlo methods.

Ying Liu has been appointed as Visiting Assistant Professor for 2007-2008. Dr. Liu has her Ph.D. in statistics from Kansas State University.





Megan Lutz has been appointed as Instructor for 2007-2008. She received her B.S. in Industrial Engineering from Georgia Tech in 2004 and earned her M.S. in Applied Statistics from RIT in August 2006. Megan was a teaching assistant at Virginia Tech from August 2006 – 2007.

She will be pursuing her Ph.D. in EDRE from Virginia Tech beginning in spring and expects to graduate in 2009.

FAREWELL



Assistant Professor **Dan Spitzner** has accepted a position at the University of Virginia. Dan joined our department in 2001. We wish Dan good luck!



Instructor **Mike McGill** has left the department to pursue his Ph.D. full-time and expects to graduate in Spring 2009. Mike joined the department in August 2004 from UGA. We wish Mike good luck!

Jeff Norris (Windows System Administrator) left in July 2007 to take up full-time employment at the Linux Technology Group in Denver, working on VoIP phone systems. Good luck Jeff!

PROFESSOR ROBERT SCHULMAN RETIRES

Dr. Robert S. Schulman has retired after 33 years of service in the Department of Statistics. Bob received a bachelor's degree in math from Carnegie-Mellon University in 1968, a master's degree in education from the University of Maryland in 1970, and a doctorate in psychology from the University of North Carolina in 1974. He has served as Graduate Administrator and as Director of the Consulting Center in the Department of Statistics at Virginia Tech and has held offices in both local and national statistical organizations.



Over the course of his career, Bob has published dozens of articles in refereed journals and authored dozens of presentations at professional conferences. While some of these papers and talks were purely statistical in nature, many resulted from collaborations with researchers in other fields. In fact, Bob has contributed statistical expertise to hundreds of research projects in areas as diverse as accounting, agriculture, business administration, education, engineering, finance, forestry, human behavior, marketing, nutrition, operations research, political science, psychology, and sociology. He has also provided statistical assistance as a faculty associate on several grants, and has served on 108 masters and 63 doctoral committees across the campus.

Although Bob has been active in research and consulting, his greatest contribution has been in teaching. He has taught 171 classes to a total of 8,626 students (+/- 100 students, with 90% confidence), earning a reputation as an organized and enthusiastic instructor. In addition to conveying topics in statistical logic and methods, he has prided himself on the ability to teach his students to think rationally and make intelligent decisions. In recognition of his teaching ability, Bob was inducted into the prestigious Academy of Teaching Excellence at Virginia Tech in 1980.

Bob's teaching experience has not been restricted to campus. For the past quarter century he has taught a 3-day short course in Applied Statistics to practicing professionals in private companies, government departments, and academic units. During this period he conducted this seminar over 120 times to more than 1,400 practicing professionals in a wide variety of fields.

Although he has officially retired, Bob will be teaching a course in fall 2007, and expects to be an active participant in departmental activities in the future.

PEOPLE CONTINUED...

RECENT GRADUATES

The department or affiliate programs have graduated 11 Ph.D. students, 18 M.S. students and 21 undergraduates since the last edition of the newsletter in September 2005.

Graduate Degrees

The Spring 2006 Master of Science graduates were **Jaeyun Lee, Jianying Lou,** and **Sunan Zhao**. Jianying and Sunan are continuing in the department for their Ph.D.'s.

The Fall 2006 Master of Science graduates were: **Abdel-Salam Abdel-Salam, Joseph Bocanegra, Adam DeOliveira, Jonathan Duggins, Laura Freeman, Erika Frydenlund, Qianhong Fu, Stephen Kaputa, Denisa Olteanu, Franklin Sell,** and **Sara Wilson**. Abdel-Salam, Jonathan, Laura, Denisa, and Sara are continuing in the Ph.D. program in the department.

The Spring 2007 Master of Science graduates where **Jeffrey Graham, Kevin Packard, Jonathan Potts,** and **Lu Wang**. Lu is continuing in our department for his Ph.D.

In 2005, **Mingjin Yan, Penelope Eisenbies-Pooler, Yuyan Duan,** and **Younan Chen** were granted their Ph.D.s; in Spring 2006, **Willis Jensen, Sabnam Modarres-Mousavi, Landon Sego,** and **Xin Zhong** were granted Ph.D.s; in Summer 2006, **David Farrar, Stephanie Pickle, Li Wang,** and **Huizi Zhang** were granted Ph.D.s; in Fall 2006, **Bing Liu** and **Ying Zhang** were granted their Ph.D.s; and in Spring 2007 **Michael Joner** was granted his Ph.D. Details of their Ph.D. theses are below.

- **Younan Chen.** 2005. Title: *Bayesian Modeling on Dual Response Surfaces*. Advisor: Keying Ye.
- **Yuyan Duan.** 2005. Title: *A Modified Bayesian Power Prior Approach*. Present position: Bristol Meyers Squibb, Philadelphia, PA. Advisors: Keying Ye and Eric Smith.
- **Penelope Eisenbies-Pooler.** 2005. Title: *Bayesian Hierarchical Methods and Use of Ecological Thresholds and Changepoints for Habitat Selection Models*. Present position: Research faculty in VT department of statistics. Advisor: Eric Smith.
- **David Farrar.** August 2006. Title: *Some Model Based and Nonparametric Clustering Methods for Characterization of Regional Ecological Stressor*

Response Patterns and Regional Environmental Quality Trends. Present position: EPA, Cincinnati. Advisor: Eric Smith.

- **Willis Jensen.** May 2006. Title: *Profile Monitoring for Mixed Model Data*. Present position: W.L. Gore & Associates, Inc. Advisor: Jeffrey Birch.
- **Michael D. Joner, Jr.** May 2007. Title: *Univariate and Multivariate Surveillance Methods for Detecting Increases in Incidence Rates*. Present position: U.S. Department of Energy, Savannah River Site. Advisors: Marion Reynolds, Jr. and Bill Woodall.
- **Bing Liu.** December 2006. Title: *Causal Gene Network Interference from Genetical Genomics Experiments via Structural Equation Modeling*. Present position: Statistical Geneticist at Monsanto Company, Ankeny, IA. Advisor: Ina Hoeschele.
- **Sabnam Modarres-Mousavi.** May 2006. Title: *Monitoring Markov Dependent Binary Observations with a Log-Likelihood Base CUSUM Control Chart*. Present position: Penn State University but is on leave at the Max Plank Institute in Berlin. Advisor: Marion Reynolds.
- **Stephanie Pickle.** August 2006. Title: *Semiparametric Techniques for Response Surface Methodology*. Present position: DuPont. Advisors: Jeffrey Birch and Timothy Robinson.
- **Landon Sego.** May 2006. Title: *Applications of Control Charts in Medicine and Epidemiology*. Present position: Northwest Pacific National Research Laboratory. Advisors: Marion Reynolds, Jr. and Bill Woodall.
- **Li Wang.** August 2006. Title: *Recommendations for Design Parameters for Central Composite Designs with Restricted Randomization*. Present position: Bristol Myers Squibb, Global Biometric Sciences, Pharmaceutical Research Institute. Advisor: Geoff Vining.
- **Mingjin Yan.** 2005. Title: *Some Methods of Estimating the Number of Clusters and a New Clustering Criterion*. Advisor: Keying Ye.
- **Huizi Zhang.** August 2006. Title: *Classification of Regional Ecological Stressor Response Patterns and Regional Environmental Quality Trends*. Present position: GlaxoSmithKline, King of Prussia, PA. Advisor: Eric Smith.
- **Ying Zhang.** December 2006. Title: *Bayesian D-optimal Design for Generalized Linear Models*. Advisor: Keying Ye.
- **Xin Zhong.** May 2006. Title: *Efficient Sampling Plans for Control Charts When Monitoring an Autocorrelated Process*. Present position: Fidelity, Boston. Advisor: Marion Reynolds.

PEOPLE CONTINUED...

We entered fall semester 2006 with 24 Ph.D. students and 36 M.S. students. This includes 27 new students. We enter fall 2007 with 20 Ph.D. students and 46 M.S. students, including 22 new students. Welcome!

Graduate Award Winners

- Boyd Harshbarger Award -

Awarded for outstanding academic achievement of a first year graduate student

Lu Wang (2005-2006)

Chao Han (2006-2007)

- Jesse C. Arnold Award -

Awarded for outstanding teaching by a graduate teaching assistant

Shannon Fraker (2005-2006)

Sara Wilson (2006-2007)

- Klaus Hinklemann Award-

Awarded for outstanding service by a graduate student to the department or university

Ying Zhang (2005-2006)

Laura Freeman (2006-2007)

Undergraduate Degrees

The December 2005 undergraduate degree recipients were **Greg Wargo** and **Ben Hurwitz**, who is on active duty in the US Navy.

In Spring 2007 we had eight graduates. They included **Daniel Griffin**, **Doug Johnsen**, and **Katie Pearson**. **Michael Frye** is a Research Assistant at RMC Research Corporation in Arlington, VA. **Andrea Lamas** is attending graduate school at George Mason and **Justin Lofling** is attending the University of North Carolina in the Biostatistics Department. **Lydia Biberaj** and **Josh Howard** have continued in our department towards graduate degrees.

In December 2006, **Jessica Johnson** received her undergraduate degree.

The seven May 2007 degree recipients included **Patrick Breads** and **Jennifer Janowiak**. **Michelle Yavulla** (Magna Cum Laude) is working at Lockheed Martin in Springfield, VA. **Allison Dunning** will be attending Virginia Commonwealth University/Medical College of Virginia campus for a PhD in Biostatistics and **Arwin Thomasson** (Magna Cum Laude) will be attending University of Pennsylvania for a PhD in Biostatistics. **Lucy Bawiec** will be attending Virginia Tech for a graduate degree in Mathematics Education and

David Peng will continue in our department towards his graduate degree.

In August, **Ryan Woody** and **Brad Yacenda** received their degrees. **Cory Edmonds** (Cum Laude) will continue in our department towards a graduate degree.

Undergraduate Award Winners

- Best in Class -

2005-2006 Academic Year

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|------------------|----------------|
| Rising Sophomore | Michael Jabs |
| Rising Junior | Jeff Fuerte |
| Rising Senior | Arwin Tomasson |

2006-2007 Academic Year

| | |
|------------------|-----------------|
| Rising Sophomore | Janelle Rose |
| Rising Junior | Michael Jabs |
| Rising Senior | Mary Arrowsmith |

- The Whitfield Cobb Award -

Awarded to the graduating senior with the highest academic performance overall

Justin Lofling (2006)

Arwin Tomasson (2007)

The Clyde Y. Kramer Award -

Awarded to a graduating senior who has shown outstanding service to the University and the broader community

Katie Pearson (2006)

Lucy Bawiec (2007)

College of Science Scholarship (2007-2008)

Janelle Rose

Michael Jabs

DEPARTMENT ACTIVITIES

STUDENT INTERNSHIPS

Several of our graduate students participated in internships this past year. Internships may be in government, industry or with another university department and are taken for course credit. Each participant must present an oral presentation to the department and a written report to their department and on-location advisors summarizing their experience. A summary of the interns for the past 2 years follows.

DEPARTMENT ACTIVITIES CONT...

- **Lydia Biberaj.** Summer 2007. Company: HSBC. Tigard, OR. Lydia worked in HSBC's Credit Card Services department. She worked on validating an old response model to see if it was still working well and found that it was not so she worked on building a new response model, with the response being the sale of a credit card offer. The model is used to determine who is most likely to respond to an offer.
- **Yunjie Chen.** Summer 2007. Company: Sanofi-Pasteur, Swiftwater, PA. Yunjie did research to determine the correlates of protection and also did some data analysis tasks on a clinical project.
- **Adam DeOliveira.** Summer 2006. Company: 3M.
- **Laura Freeman.** Summer 2006. Company: National Consortium for the Study of Terrorism and Responses to Terrorism (START) at the University of Maryland. Laura applied Cox's Proportional Hazard Modeling methods to determine whether certain events increased/decreased the risk of future terrorist attacks in a specific province of Iraq.
- **Travis Gray.** Summer 2007. Company: Capital One, Richmond, VA. Travis worked as a statistician in the customer acquisition segment of Capital One's credit card business. He deals with problems concerning models that are built to predict customer performance when sampling is not random.
- **Josh Howard.** Summer 2007. Company: Minitab, State College, PA. Josh worked in the Quality Assurance department and worked on validating Minitab's statistical process software.
- **Jianying Lou.** Jan. – Aug. 2006. Company: RJR Tobacco Company, Winston-Salem, NC. Jianying worked on data analysis, model development and statistical consulting.
- **Denisa Olteanu.** Summer 2006. Company: 3M, Minnesota. Denisa worked in the Lean Six Sigma Organization department consulting for supply chains, doing robust design research, working on project management for informational system redesign, conducting seminars about JMP, and helping with Six Sigma training curricula redesign.
- **Anne Ryan.** Summer 2007. Company: Minitab, State College, PA. Anne worked in the Technical Support Department answering phone calls, responding to emails and questions through the Minitab website, logging feedback about software, and reviewing statistical write-ups for possible publication on Minitab's website.
- **Xiaowei Wang.** Summer 2006. Company: Merck & Co., Inc. Xiaowei reviewed recently published papers, evaluated, and applied approaches to determine the optimal designs of sampling times and sample sizes in population PK studies in phase II and III. She also was involved in a disease-drug-PK/PD modeling project for a historical database and used non-linear mixed effects models to describe the dose-biomarker response profile.
- **Yadan (Diana) Wang.** Summer 2007. Company: Royal Bank of Scotland National Bank, Bridgeport, CT. Diana assisted in the conduct of formal quantitative analyses from question formulation to presentation of outcomes, including written summaries and business recommendations. She also implemented, tracked, documented and analyzed relevant business strategies, actions, and statistical and mathematical models. Diana organized data for the generation of analytical and statistical reports and identified issues and areas in need of statistical analysis.
- **Jake Zielinski.** January – August 2007. Company: Pratt & Whitney, East Hartford, CT. Jake worked on many projects including SPC, time series analysis, DOE, categorical data analysis, Monte Carlo simulation, Bayesian analysis, teaching and designing statistics courses, and logistic and multiple regression.

HONORS

Stephanie Pickle, along with **Jeff Birch** and **Timothy Robinson**, won an award for Best Student Presentation for their presentation "A Semiparametric Approach to Robust Parameter Design," presented at the Virginia Academy of Sciences Annual Meeting in 2006.

Shannon Fraker received the 2007 Mary G. and Joseph Natrella Scholarship through the Quality and Productivity Section of the ASA. In addition, Shannon received the 2007 Ellis Ott Scholarship from the Quality and Productivity section of the ASA.

Shannon also received a Travel award (\$500) from the Statistics in Epidemiology Section of ASA to attend the Joint Statistical Meeting in Salt Lake City, Utah (2007).

Laura Freeman was awarded as a Department of Homeland Security Fellow in Fall 2005, renewable through Summer 2008.

CORPORATE PARTNERS PROGRAM



The Virginia Tech Department of Statistics Corporate Partners Program was formed in the 2000-01 academic year as an initiative of Geoff Vining, then new department head, and under the direction of Golde Holtzman, chair of the Corporate Partners Committee.

The purpose was and remains the formalization and further development of the strong relationships between our department and the many corporations that have been populated by our alumni. As one of the first three academic statistics departments established in the US (circa 1949), our alumni have long been a substantial presence in corporate and institutional statistics.

Now we have seven active corporate partners: Becton Dickenson, DuPont, Capital One, Eli Lilly and Company, General Electric, Minitab, and SAS. Corporate Partners are or have been involved in funding of joint research, graduate research assistantships and other grants, computing equipment, visiting professorships and seminars, and many short- and long-term internships.

The 2007 Virginia Tech Department of Statistics Corporate Partners Conference was held Thursday evening, October 4 through Saturday afternoon, October 6. Lodging, meals, and local transportation were provided for two representatives of each corporate partner so that we could make the most of our time together.

The schedule was similar to that of previous years. The highlights were:

- one-on-one interviews with Masters and Ph.D. candidates,
- advisory meeting with departmental leaders,
- advisory meeting with College of Science Dean Lay Nam Chang,
- student presentations of current research, and
- plenty of opportunities to develop professional relationships and joint projects.

We had strong attendance and hope this continues in future years. Inquiries should be directed to Professor Golde Holtzman, Holtzman@vt.edu, or 540-231-8356.

HONORS CONTINUED...

Kim Love received the Best Student Paper award at the American Statistical Association/Virginia Academy of Science Chapter Meeting held in Harrisonburg, Virginia in May, 2007. The award was for her presentation entitled "Error Modeling in Geographic Information Systems," presented with K. Ye, E.P. Smith, and S.P. Prisley.

J.P. Morgan is the Associate Editor of the Journal of Statistical Planning and Inference, 2004 – present. He will also be the Associate Editor of the Journal of the American Statistical Association beginning in January 2008.

Denisa Olteanu received the 2007 Richard A. Freund International Scholarship from the American Society for Quality. You can read more about her award at <http://www.asq.org/about-asq/awards/honors/bio/olteanu.html>.

Geoff Vining received the 2006 Lloyd Nelson Award by the American Society for Quality Statistics Division for the paper published in the Journal of Quality Technology in the previous year that had the greatest immediate impact to practitioners.

Geoff was also an Elected Member of the International Statistical Institute (Elected December 2005).

Bill Woodall received the Brumbaugh Award presented by the American Society for Quality for the paper "Use of Control Charts in Health Care Monitoring and Public Health Surveillance," (with discussion) published in the Journal of Quality Technology, 38, 89-104. You can view this paper at

http://www.asq.org/pub/jqt/past/vol38_issue2/_jqt38_02woodall.pdf. The Brumbaugh Award is presented to the authors whose paper "has made the largest single contribution to the development of industrial application of quality control."

GRANTS

Ina Hoeschele has received several grants. She received a grant from the National Institutes of Health for \$320,708. The grant is entitled, "Polygenic linkage and linkage disequilibrium mapping" and runs from 2002-2006.

Hoeschele, along with B.M. Tyler, M.A. Saghai Marood, G.R. Buss, K. Ye, A. Dorrance, and S. St. Martin, also received a grant from the National Science Foundation for \$6,764,465 entitled "Dissecting soybean resistance to *Phytophthora* by QTL analysis of host and pathogen expression profiles." This grant runs from 2002-2008.

She also received a grant from the Comprehensive Cancer Center of Wake Forest University for her work on "Biostatistics Consulting." This grant runs from 2006-2010 for \$255,612.

For their work on "Halotyping and QTL mapping in pedigrees with missing data," Hoeschele (co-P.I.), along with G. Gao (P.I), et.al. received a grant from the National Institutes of Health. This grant will run from 2007-2011.

J.P. Morgan received a National Science Foundation research grant entitled "Symmetry and Asymmetry in Experimental Design." This grant for \$144,276 runs from September 2006-September 2008.

Penelope Pooler received a grant for \$95,127 to fund her work on Collaboration and Support for Vital Signs Monitoring Program of the Northeast Region Inventory and Monitoring Program of the National Park Service, awarded for 7/1/07 to 6/30/08.

Eric Smith and **Dan Spitzner** received a grant for \$25,300 for their work on "Planning support for the fisheries and aquatic resources node of the national biological infrastructure. This is a subcontract with the Conservation Management Institute, USGS.

Eric Smith,(co-P.I.), along with S. Prisley, L. Cartensen, Jr., and K. Ye, received a grant entitled "Application of spatial uncertainty models to automate and enhance data fusion." This grant through the National Geospatial Intelligence Agency for \$449,643 with roughly 25% to statistics runs from August 2005 to July 31, 2008.

Geoff Vining, P.I., received a grant from Becton-Dickinson awarded for \$46,605 for a project entitled "BD Assistantship" for 2006.

RECENT PUBLICATIONS AND TALKS

Papers

- Adamee, V., Cassell, B.G., and Smith, E.P. (2006) "Effects of inbreeding in the dam on dystocia and stillbirths in US Holsteins," *Journal of Dairy Science*, 89(1): 307-314.
- Bailey, R.A., Cameron, P.J., Dobscyani, P., Morgan, J.P., and Soicher, L.S. (2006) "Designs on the web," *Discrete Mathematics*, 306, 3014-3027.
- Bates Prins, S.C. and Smith, E.P. (2007) "Using biological metrics to score and evaluate sites: A nearest-neighbor reference condition approach," *Freshwater Biology*, 52, 98-111.
- Beck, B. and Morgan, J.P. (2005) "Optimal design in irregular BIBD settings," *Journal of Statistical Planning and Inference*, 129, 59-84.
- Beck, B. and Morgan, J.P. (2007) "E-optimal design in irregular BIBD settings," *Journal of Statistical Planning and Inference*, 137, 1658-1668.
- Betthausen, J.M., Pfister-Genskow, M., Xu, H., Gouleke, P.J., Lacson, J.C., Koopang, R.W., Liu, B. Hoeschele, I., Eilertson, K.J., and Leno, G.H. (2006) "Nucleoplasmin facilitates reprogramming and in vivo development of bovine nuclear transfer embryos," *Molecular Reproduction and Development*, 73, 977-986.
- Bing, N., and Hoeschele, I. (2005) "Genetical genomics analysis of a yeast segregant population for transcription network inference," *Genetics*, 170, 533-542.
- Bing, N., Hoeschele, I., Ye, K., and Eilertson, K.J. (2005) "Finite mixture model analysis of microarray expression data on samples of uncertain biological type with application to reproductive efficiency," *Veterinary Immunology and Immunopathology*, 105, 187-196.
- Birch, J.B. and Morgan, J.P. (2005) "TA Training at VT: a stepwise progression," *The American Statistician*, 59, 14-18.
- Du, P., and Gu, C. (2006) "Penalized likelihood hazard estimation: efficient approximation and Bayesian confidence intervals," *Statistics and Probability Letters*, 76, 244-254.
- Duan, Y.Y., Smith, E.P., and Ye, K. (2006) "Using power priors to improve the binomial test of water quality," *Journal of Agriculture, Biological and Environmental Statistics*, 11(2): 151-168.

UNDERGRADUATE GRADUATION CEREMONY 2007



Back Row (left to right): Michelle Yavulla, David Peng, Ryan Woody, Cory Edmonds

Middle Row: Pat Breads, Jen Janowiak

Front Row: Arwin Tomasson, Brad Yacenda, Allison Dunning, Lucy Bawiec

Papers Continued...

- Fraker, S.E., Woodall, W.H., and Burkom, H.S. (2007) "A Note on the Poisson Likelihood Ratio Test Statistic for Kulldorff's Scan Methods," submitted to *Communications in Statistics – Theory and Methods*.
- Fuiman, L.A., Rose, K.A., Cowan, J.H, Jr., and Smith, E.P. (2006) "Survival skills required for successful evasion of predators and their relationship to laboratory measures of performance," *Animal Behavior*, 71: 1389-1399.
- Gao, G., and Hoeschele, I. (2005) "Approximating identity-by-descent matrices using multiple haplotype configurations on pedigrees," *Genetics*, 171, 365-376.
- Gao, G., and Hoeschele, I. (2007) "A note on a haplotyping method in pedigrees," *Genetics, Selection, Evolution*, in press.
- Gupta, S., Montgomery, D.C., and Woodall, W.H. (2006) "Performance Evaluation of Two Methods for Online Monitoring of Linear Calibration Profiles," *International Journal of Production Research*, 44, 1927-1942.
- Hoeschele, I. (2007) "Mapping quantitative trait loci in outbred pedigrees," *Handbook of Statistical Genetics*, DJ Balding, M Bishop & C Cannings (eds.), Wiley, 477-525, in press.
- Hoeschele, I., and Li, H. (2005) "A note on joint versus gene-specific mixed model analysis of microarray gene expression data," *Biostatistics*, 6, 183-186.
- Jensen, W.A., Birch, J.B., and Woodall, W.H. (2007) "High Breakdown Estimation Methods for Phase I Multivariate Control Charts," to appear in *Quality and Reliability Engineering International*.
- Jensen, W.A., Birch, J.B., and Woodall, W.H. (2007) "Monitoring Correlation within Linear Profiles Using Mixed Models," to appear in the *Journal of Quality Technology*.

Papers Continued...

- Jensen, W.A., Jones-Farmer, L.A., Champ, C. W., and Woodall, W. H. (2006) "Effects of Parameter Estimation on Control Chart Properties: A Literature Review," *Journal of Quality Technology*, 38, 349-364.
- Jin, B. and Morgan, J.P. (2007) "Optimal saturated block designs when errors are correlated," *Journal of Statistical Planning and Inference*, to appear.
- Joner, M.D., Woodall, W.H., and Reynolds, M.J., Jr. (2007) "Detecting a Rate Increase Using a Bernoulli Scan Statistic," *Statistics in Medicine*, in press.
- Karpanty, S.M., Fraser, J.D., Berkson, J., Niles, L.J., Dey, A., and Smith, E.P. "Horseshoe Crab Eggs Drive Red Knot Distribution in Delaware Bay Habitats," *Journal of Wildlife Management*, 70(6): 1704-1710.
- Kim, K. and Reynolds, M.R., Jr. (2005) "Multivariate Monitoring Using an MEWMA Control Chart with Unequal Sample Sizes," *Journal of Quality Technology*, 37, 267-281.
- Kowalski, S.M., Parker, P.A., and Vining, G.G. (2007) "Tutorial on Split-Plot Experiments," *Quality Engineering*, 19, 1-15.
- Kowalski, S.M., Vining, G.G., Montgomery, D.C., and Borror, C.M. (2006) "Modifying a Central Composite Design to Model the Process Mean and Variance when There are Hard-to-Change Factors," *Applied Statistics*, 55, 615-630.
- Lipkovitch, I, Smith, E.P., and Ye, K. "Detecting Pattern in Biological Stressor Response Relationships Using Model Based Cluster Analysis," *Ecological and Environmental Statistics*, to appear.
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- Birch, J.B., Williams, J.D., and Woodall, W.H. "Statistical Monitoring of Dose-Response Quality Profiles from High-Throughput Screening," Joint Statistical Meetings, Minneapolis, MN, August 2005.
- Birch, J.B., Pickle, S.M., and Robinson, T.J. "Nonparametric Approaches to Response Surface Methodology," Joint Statistical Meetings, Minneapolis, MN, August 2005.
- Birch, J.B., Jensen, W.A., and Woodall, W.H. "High Breakdown Estimation Methods for Phase I Multivariate Control Charts," Joint Statistical Meetings, Minneapolis, MN, August 2005.
- Birch, J.B., Williams, J.D., and Woodall, W.H. "Statistical Monitoring of Dose-Response Quality Profiles from High-Throughput Screening," Fall Technical Conference, St. Louis, MO, October 2005.
- Birch, J.B., Pickle, S.M., and Robinson, T.J. "A Semiparametric Approach to Robust Parameter Design," Virginia Academy of Sciences Annual Meeting, Blacksburg, VA, May 2006.
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- Birch, J.B., and Mays, J. "Model Robust Regression: Development and Applications," Southern Regional Council on Statistics 2007 Summer Research Conference, Richmond, VA.
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- Du, Pang. "Nonparametric Smoothing Spline Model for Gap Time Hazard Function in Recurrent Event Data," International Chinese Statistical Association 2006 Applied Statistics Symposium, Storrs, CT, June 2006.
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- Holtzman, G.I. and Zipper, C.E. "Nonparametric significance tests for sums of censored random variables" (contributed paper/abstract 306854, Nonparametrics), Joint Statistical Meetings, Seattle, Washington, August 2006.
- Joner, Mike. "Detecting a Rate Increase Using a Bernoulli Scan Statistic," Joint Statistical Meetings, Seattle, Washington, August 2006.
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- Love, K.R., K. Ye, E.P. Smith, and S.P. Prisley. "Error Models in Geographic Information Systems Vector Data using Bayesian Methods," Joint Statistical Meetings, Salt Lake City, Utah, August, 2007.
- Marshall, J.B. "A Wavelet-Based Method for the Prospective Monitoring of Disease Occurrences in Space and Time," Joint Research Conference, Knoxville, Tennessee, June 2006.
- Marshall, J.B. "An Overview of a Wavelet-Based Method for the Prospective Monitoring of Disease Occurrences," Joint Statistical Meetings, Seattle, Washington, August 2006.
- Morgan, J.P. "Optimal design for three treatments in settings with multiple blocking factors," International Conference on Design Experiments: Theory and Applications, Memphis, TN, May 13, 2005.
- Morgan, J.P. "Optimal incomplete block designs," Design and Analysis of Experiments 2005, Santa Fe, NM, October 14, 2005.
- Morgan, J.P. "Robustness of BIBDs to data loss," VAS Annual Meeting, Blacksburg, May 25, 2006.
- Morgan, J.P. "Investigations on saturated block designs," SCRA 2006/FIM XIII, Tomar, September 2, 2006.
- Morgan, J.P. "Robustness of block designs to loss of data," presented at a special plenary session of SCRA 2006/FIM XIII, Tomar, September 4, 2006.
- Reynolds, M.R., Jr. "Control Charts for Multivariate Monitoring the Mean and Variability of Multivariate Processes with Sequential Sampling," invited plenary lecture at the First International Workshop in Sequential Methodologies, Auburn, AL, 2007.
- Reynolds, M.R., Jr. and Stoumbos, Z.G. "Multivariate Monitoring of the Process Mean and Variability Using Combinations of Shewhart and MEWMA Control Charts," invited presentation at the IXth International Workshop on Intelligent Statistical Quality Control, Beijing, China, 2007.

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- Reynolds, M.R., Jr. and Stoumbos, Z.G. "Multivariate Monitoring of the Process Mean Vector with Sequential Sampling," invited presentation at the *Journal of Quality Technology* sponsored session, INFORMS Annual Meeting, San Francisco, CA, 2005.
- Sagha Maroof, M.A., Tucker, D., Skoenszka, J., Dorrance, A.E., Mideros, M., St.Martina, S.K., Zhou, L., Tripathy, S., Mao, Y., Hoeschele, I., and Tyler, B.M. "Genomics of Disease Resistance in Soybean: QTL Mapping and Expression Profiling," 11th Biennial Conference on the Molecular and Cellular biology of the soybean, Lincoln, Nebraska, August 5-8, 2006.
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- Stock, K.F., Distl, O., and Hoeschele, I. "Estimation of genetic parameters for categorical, continuous and molecular genetic data in multivariate animal threshold models using Gibbs sampling," Meeting of the European Association of Animal Production, 2006.
- Stock, K.F., and Hoeschele, I. "Multivariate estimation of genetic parameters for categorical, continuous and molecular genetic data in threshold models using Gibbs sampling," CME conference on genome-wide association studies: design and analysis, Yale School of Public Health, October 26-27, 2006.
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- Tyler, B.M., Zhou, L., Mideros, S.X., Torto-Alaibo, T., Tripathii, S., Mao, Y., Li, H., Costanzo, S., St.Martin, S.K., Saghai Maroof, M.A., Hoeschele, I., and Dorrance, A.E. "Effects of Quantitative Resistance on the Transcriptional Interactome During Infection of Soybean by *Phytophthora sojae*," International Plant and Animal Genome Conference IX, San Diego, January 2006.
- Vining, G.G. "Comments on the Use of Computer Experiments for Robust Design," at the Joint European Network for Business and Industrial Statistics – Design of Industrial Experiments Conference, Turin, Italy, 2007.
- Vining, G.G. "An Overview on the Current Work on Industrial Split-Plot Experiments," 16th Simposio de Estadística Sponsored by the Universidad Nacional de Colombia (Annual Joint Statistical Meeting for Colombia and Venezuela), Bucaramanga, Colombia, 2006.
- Vining, G.G. "The Challenges of Statistical Leadership," Statistical Society of Canada, The Isobel Loutit Invited Address on Business and Industrial Statistics, London, Ontario, 2006.
- Vining, G.G. "Role of Optimal Design: A Panel Discussion," Q&P Research Conference, Knoxville, Tennessee, 2006.
- Vining, G.G., and Kowalski, S.M. "Response Surface Methodology for Split-Plot Experiments: A Sequential Learning Strategy," INFORMS Annual Meeting, San Francisco, California, 2005.
- Vining, G.G., Wan, W. and Birch, J. B. "An Improved Genetic Algorithm," Virginia Academy of Science Annual Meeting, Blacksburg, VA, May 2006.
- Wan, W. and Birch, J. B. "An Improved Genetic Algorithm," Corporate Partners Conference, Blacksburg, VA, October 2006.
- Wan, W. and Birch, J.B. "An Improved Genetic Algorithm Using a Derivative-free Directional Search," Eastern North American Region of the International Biometric Society, Atlanta, GA, March 2007.
- Woodall, W.H. "Use of Control Charts in Health Care Monitoring and Public Health Surveillance," Fifth International Symposium on Business and Industrial Statistics in Lima, Peru, January 2006.
- Woodall, W.H. "Use of Control Charts in Health Care Monitoring and Public Health Surveillance," Georgia Tech School of Industrial and Systems Engineering, April 2006.
- Woodall, W.H. "Use of Control Charts in Health Care Monitoring and Public Health Surveillance," Joint Statistical Meetings, Seattle, Washington, August 2006.
- Woodall, W.H. "Use of Control Charts in Health Care Monitoring and Public Health Surveillance," Meeting of the Royal Statistical Society, Belfast, Ireland, September 2006.
- Woodall, W.H. "Use of Control Charts in Health Care Monitoring and Public Health Surveillance," Lynchburg Section of ASQ, March 2007.
- Woodall, W.H., Birch, J.B., Williams, J.D., and Ferry, N.M. "Statistical Monitoring of Heteroscedastic Dose-Response Profiles from High-Throughput Screening," Joint Research Conference, Knoxville, TN, June 2006.

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- Zhou, L., Tyler, B.M., Mao, Y., Hoeschele, I., et al "Effects of quantitative resistance on the transcriptional interactome during infestation of soybean by *Phytophthora sojae*," VBI Research Symposium, 2006.
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Short Courses

Robert Schulman gave three-day short courses on Applied Statistics for the Goodyear Tire & Rubber Company in September 2005 and July 2006, as well as NASA Ames Research Center in September 2005.

Shannon Fraker, Robert Schulman and **Eric Smith** conducted a half-day training session in SPSS for the Virginia College of Osteopathic Medicine in April 2007.

APRIL 16 TRAGEDY

It's been almost six months since the horrible tragedy of April 16. Not everyone on campus has been touched directly, but everyone is close to someone who has been touched directly. The campus is somber, but looking forward with great confidence and spirit. The entire Virginia Tech family is united in support of President Steger and Police Chief Wendell Flinchum (whom you have seen on television), and, above all we are in awe of our students who have reacted with great strength, understanding, and integrity. Along with a loss of innocence, priorities have been clarified. Petty distractions are dissolved. Important goals have been sharpened.



For the spring semester, students had the option, in each class, of taking their course grade as of April 16, or of completing work in progress and taking the final exam. While most students are opted out of finals, class attendance was surprisingly high when classes resumed for the final two weeks. Mutual consideration and support within and among all sectors of the university community—students, faculty, administration, staff, police, alumni, other universities, etc—has been demonstrated again and again in every conceivable way.



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Alumni URL: <http://www.stat.vt.edu/alumni/>

The American Society for Quality (ASQ) has a scholarship for graduate study of the theory and application of quality control, quality assurance, quality improvement, and total quality management. To see more, please visit <http://www.asq.org/about-asq/awards/freundschar.html>