VirginiaTech | Statistics

Fall 2010

Volume 8

In This Issue:

1. Welcome
2. Undergraduate Program
3. Graduate Program
4. Ray Meyers
5. LISA & New Faces
6. Colloquium
7. Corporate Partners
8. SAS Course & Ellis R. Ott Scholarship
9. Rose Wilkinson Costain Fellowship, Faculty Spotlight, & First Year Float
10. Contribution

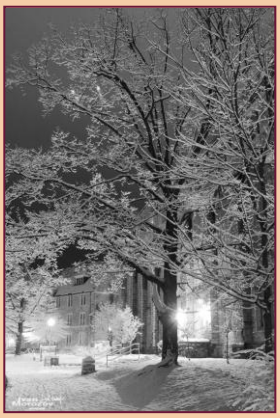

Photo by Ivan Morozov
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Welcome from Department Head Eric Smith

Like other departments in state universities we have had to make another round of budget cuts that limit our ability to maintain strong undergraduate and graduate programs. We face increasing enrollment in our classes and pressures to eliminate smaller graduate classes. I'm pleased to report however, we have been able to continue to grow our program and have had a very productive year in terms of publications and funded research.

Thanks to your support our graduate program continues to improve and expand. Last year we graduated 16 master's level students and 3 Ph.D. students. Our graduate students (we now have 66) continue to be rewarded for their work. Laura Freeman was named the 2009 Graduate Woman of the Year, to recognize her research and service to the university. She also received a second fellowship from the Amelia Earhart Foundation and a Virginia Space Grant Award. Denisa Olteanu was awarded the Mary G. and Joseph Natrella Scholarship from the Quality and Productivity Section of the American Statistical Association. Abdel-Salam G. Abdel-Salam received the 2009 Richard A. Freund International Scholarship from the American Society of Quality. Our recruiting efforts continue to benefit from the devotion of our graduate coordinator, Jeff Birch; the financial support from our Corporate Partners program; and staff support from Christina Dillon. This fall we add 20 new students to our program.

Our undergraduate program graduated 15 in the spring graduation ceremony. Leigh Harrell continues her efforts to improve the program (congratulations to Leigh on her promotion). Our Actuarial Science minor has been successful and already has 24 students. Our freshman class includes four new students, and we are adding three transfer students to our undergraduate program.

Our Laboratory for Interdisciplinary Statistical Analysis (LISA), under the direction of Eric Vance, continues to provide outstanding services to graduate students, faculty, and university staff. This year our short course program has been a tremendous success and has attracted over 150 students. We also have implemented a successful walk-in service. Thanks to the generous support of the Provost, Research Division, Graduate School, College of Science and the other colleges, we are able to provide the service and help train our students in statistics collaboration and consulting. See www.lisa.stat.vt.edu for more details.

The department hired Chris Franck, a graduate of North Carolina State University, as an assistant director of LISA. Chris will be working partly for the Virginia Bioinformatics Institute and will help to expand our biostatistics expertise. We look forward to his arrival and contributions to strengthening the LISA program. This brings the total number of faculty to 20.

Finally, we continue to be rewarded through contributions of our alumni and friends. This year we started the Rose Costain Fellowship Award that will be given for outstanding citizenship by a graduate student. As you recall Rose worked as administrative assistant for the departmental graduate program and also for Dick Krutchkoff. We greatly appreciate her support. We also are proud to be able to continue awards based on contributions from Ray Myers and Jean Gibbons. This past year Austin Rhodes was awarded the Jean Dickinson Gibbons Statistics Award and Liaosa Xu was the recipient of the Raymond H. Myers Award. Although these contributions are quite generous, we are however facing continued financial stress and hope that you are able to help support our programs. Opportunities to contribute to various scholarships are described on the last page of the newsletter. Contributions to the general Statistics fund are also welcomed. And, don't forget to stop by for a visit if you are in the area. We'd love to hear about how you have done since we saw you last.

Undergraduate Program

In Fall 2009 **Alexander Hong** and **Madeleine Teller** graduated.

In Spring and Summer 2010, thirteen undergraduates completed their degrees. They included **Ashley Belcher**, **Lindsay Berg**, **Caitlin Campbell**, **Sherry Carr**, **Chris Cunningham**, **Susan Deis**, **Matthew George**, **Scott Kalafut**, **Meredith Morris**, **Gregory Peed**, **Janelle Rose**, **Emily Winfree**, and **Bruno Vizcarra**.

The Whitfield Cobb Award is presented to the graduating senior with the highest academic performance overall. This year's recipient is Lindsay Elizabeth Berg.

The Clyde Y. Kramer Award is presented to a graduating senior who has shown outstanding service to the University and the broader community. This year's recipient is Emily Elizabeth Winfree.

Congratulations to all of our undergraduate degree and award recipients!

John H Kroehling Scholarship Recipients
- Chi Yeung
- George Rooney

Marion & Charlotte Eckert Scholarship Recipients
- Stephen Goode
- Agata Bogacki

Clyde Kramer Scholarship Recipients
- Chang Liu
- Kayla Lamar
- Chelsea Hickey
- Samantha Lewandoski
- Mitchell Ruloff
- Miranda Lucia

Undergraduate Student Internships & Activities

Hubert Shang is doing an internship this summer at the Census Bureau in Suitland, MD.

Kelly Geyer spent a week in May participating in the SAMSI Undergraduate Modeling Workshop at NC State University and is spending the rest of her summer at University of Tennesee as part of the NIMBioS Summer REU Program. She is working on the Biodiversity at the Great Smoky Mountains National Park project directed by Dr. Nathan Sanders, Dr. William Godsoe, and Dr. Paul Armsworth.

Chang Liu is participating in the Summer Institute in Training in Biostatistics (SIBS) program at Emory University Rollins School of Public Health.

Becca Galle is a Marketing Research Intern this summer at Shire Pharmaceuticals.

Mitch Ruloff is doing an internship this summer at Babcock and Wilcox in Lynchburg, VA.

Graduate Degrees

The Fall 2009 Master of Science graduates were **Jeffrey Belcher** (now with the Naval Surface Warfare Center Dahlgren Division for the federal government), **Veronica Bubb**, **Susan Furst** (now with Virginia Tech Transportation Institute), **Nicolle Goble** (now a data analyst for the Treatment Research Institute & statistics PhD student at Temple University), **Bo Liu** (now with the Biometrician Group of Pfizer Animal Health), **Casey Turner** (now with Army Evaluation Center at Aberdeen Proving Ground), **Linyan Wen**, and **Brian Wright**. **Lucas Roberts** and **Liaosa Xu** are continuing as PhD students in the department.

In Spring 2010, Master of Science degrees were awarded to **Evan Brooks** (now a PhD student in Forestry at VT), and **Nabin Gyawali** (a PhD student in Forest Biometry at VT). **Lulu Cheng** and **Zaili Fang** are continuing as PhD students in the department.

Departmental Awards

The Boyd Harshbarger Award is awarded for outstanding academic achievement by a first year graduate student. This year's recipient is Han Li.

The Jesse C. Arnold Award is awarded for outstanding teaching by a graduate teaching assistant. This year's recipient is John Szarka.

The Klaus Hinklemann Award is awarded for outstanding service by a graduate student to the department or university. This year's recipient is Nels Johnson.

The Raymond Myers Award is given to the top student in Linear Models and Experimental Design. This year's recipients are Austin Rhodes and Yiming Peng.

The Gibbons Statistics Award is given to an outstanding first year PhD student in statistics. This year's recipient is Daniel Whitehead.

The Costain Award is given to an outstanding graduate student citizen in the Department of Statistics. This year's recipient is Anne Ryan.

Laura Freeman, Dr. Eric Smith, and Denisa Olteanu at Spring Graduation

There are 186 Statistics Students

- *57 majors*
- *30 minors*
- *24 Actuarial Science minors*
- *75 graduate (MS & PhD)*

The department awarded 27 undergraduate degrees, 17 masters degrees, and 4 PhD's in 2009 and Spring 2010.

PhD Recipients

In Fall 2009, **Abdel-Salam G. Abdel-Salam** graduated with his PhD. He is currently a Visiting Assistant Professor at Oklahoma State University.

Abdel-Salam G. Abdel Salam (2009)
Title: Profile Monitoring with Fixed and Random Effects using Nonparametric and Semiparametric Methods
Advisor: Jeffrey Birch

In Spring 2010, three students graduated with their PhD: **Laura Freeman** (statistician for the Science Applications International Corporation in Northern Virginia), **Linmin Gan,** and **Denisa Olteanu**.

Details of their PhD dissertations are:

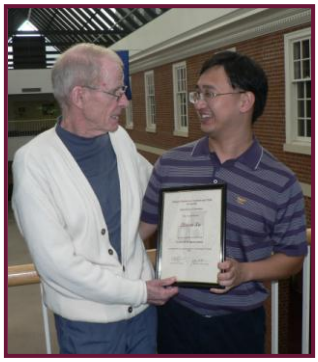
Laura Freeman (2010)
Title: Statistical Methods for Reliability Data from Designed Experiments.
Advisor: Geoff Vining

Linmin Gan (2010)
Title: Adaptive Threshold Method for Monitoring Rates in Public Health.
Advisor: Bill Woodall

Denisa Olteanu (2010)
Title: Cumulative Sum Control Charts for Non-Normal Censored Data.
Advisor: Geoff Vining

Still Serving Students: Prof. Emeritus Ray Myers

By ***Albert Raboteau, Virginia Tech Development Writer***



Ray Meyers (left) created a fellowship for graduate students. Liaosa Xu (right) was the first recipient.

Over the course of his career, Professor Emeritus of Statistics Ray Myers has been the research advisor to more than 40 Ph.D. students and directed 11 master's theses. The many teaching awards he's won include Virginia Tech's Wine Award and the Council for Advancement and Support of Education's Virginia's Professor of the Year.

Given those accomplishments, Myers justifiably could have decided he'd done enough for students in his field back when he retired in 1995. But he returned to teach from 1997 until 2001 and again in 2006 and 2007. And last year he endowed the Raymond H. Myers Fellowship Award to support graduate students interested in response surface methodology, an area of statistics he helped pioneer. Liaosa Xu, a Ph.D. candidate from Lhasa, China, is the first recipient.

"By giving back, I have a chance to help give current students a chance like I had. I think everybody should give back, but I felt like I owed a lot."
Ray Meyers

"By giving back, I have a chance to help give current students a chance like I had," Myers says. "I think everybody should give back, but I felt like I owed a lot."

Myers first came to Virginia Tech to study chemical engineering. It was a practical move for a young man from a region of West Virginia where the chemicals industry was prominent. And he did go on to make a significant impact on that industry – just not in the way he expected.

He earned his bachelor's in chemical engineering in 1959, a bad period for the economy. Myers had limited job prospects and was wrestling with the decision to attend graduate school. Then a chance meeting with Boyd Harshbarger changed his life.

"He liked chemical engineers," Myers recalls of the founder of Virginia Tech's statistics department. "He'd had some in his class. He said they had a fellowship in statistics, and my reaction was, 'What is statistics?'"

Myers knew little about the subject before entering the graduate program, but found statistics fascinating. He earned his master's in 1961 and Ph.D. in 1963. As it turns out, the area of statistics Myers specialized in, response surface methodology, was widely used in both the chemical and pharmaceutical industries.

Though he never became a practicing chemical engineer, as his father had hoped, Myers has consulted and trained employees for chemical companies, along with dozens of other firms and government agencies.

"It was a natural that I would sort of fall in love with this topic, since I had just come out of the chemical engineering department," recalls Myers, whose wife Sharon, daughter Julie, and son Bill all have advanced degrees in statistics as well.

During the early part of his graduate studies Myers was not eager to teach. But he was so inspired by one of his teachers, Rolf Bargmann, who later went to the University of Georgia, that he changed his mind. As it turned out, Myers enjoyed teaching so much that he found it hard to give up after retiring.

"Statistics seems to be able to be applied in almost every field," Myers says. "In my opinion, that makes it very attractive to teach. I don't think my love for teaching would be nearly as strong if I were in any other field."

LISA (Laboratory for Interdisciplinary Statistical Analysis)

As many statistics alumni are aware LISA was established in 2008 from the Statistical Consulting Center which was formed in 1973. By fall 2008, thanks to the creativity of Director Eric Vance, LISA was offering three services: one-on-one collaboration meetings, walk-in consulting, and educational short courses, all of which are free to Virginia Tech researchers. LISA assists with designing experiments, using appropriate statistical terms and tests in grant proposals, and analyzing data.

In addition to assisting Virginia Tech researchers, LISA provides statistics graduate students the opportunity to develop real world statistical communication skills with the support of faculty.

In 2009, the statistical collaborators of LISA met with researchers from across the university for 236 collaboration projects, answered quick statistical questions for 211 researchers during our Walk-in Consulting hours, and provided instruction for 272 short course attendees on how to apply statistics in their research for a total of 2,715 hours of statistical assistance and education provided.

A new assistant director and an administrative specialist have recently joined the LISA team (see below). LISA's goal for 2010 is to build bridges with other Virginia Tech institutes including Virginia Bioinformatics Institute and VT Carilion. For more information about LISA, please visit www.lisa.stat.vt.edu. If you have any suggestions or comments, please let us know.

LISA Walk-In consultant Mark Seiss (left) helps a client.

LISA Quick Stats for 2009

- *236 Collaboration Clients*
- *211 Walk-In Clients*
- *272 Short Course Attendees*
- *More than 2,700 hours of statistical assistance*

New Faces in the Department

Michael Flora, Windows System Administrator, graduated in the fall with a Business Information Technology degree. We wish him well in his endeavors. Steve Slaughter and Jass Sidhu were added to support the computer system needs of the department.

Steve Slaughter is the department's IT Analyst and Unix Administrator. He works part time as IT Analyst in the Biochemistry department as well. He graduated from VT with a degree in Biochemistry and has worked as a developer/programmer on numerous sponsored research projects at the university as well as for the Commonwealth of Virginia in Richmond. His most recent position was as the database architect for a software development firm in Blacksburg.

Jass Sidhu is the department's Windows System Administrator. He is currently working on a MBA from the Pamplin College of Business here at VT. He previously completed masters work at Middlesex University in London, UK. Before coming to Virginia Tech he worked with Dell and a pharmaceutical company.

LISA added Tonya Pruitt as its Administrative Specialist to maintain the records and publicize LISA as well as to contribute to the smooth running of the department (and this newsletter). She graduated from VT with degrees in Agricultural and Extension Education and Biochemistry.

The department hired Chris Franck, a Department of Statistics PhD graduate of North Carolina State University, as an assistant director of LISA. Chris will be working partly for the Virginia Bioinformatics Institute and will help to expand our biostatistics expertise. We look forward to his arrival and contributions to strengthening the LISA program.

Chris Franck chats with Professor George Terrell

Dr. Montserrat Fuentes
Mu Sigma Rho
Fall guest speaker

Colloquium

The department had another successful year of colloquium speakers. During Fall 2009, the department hosted 9 guests and 13 were hosted during Spring 2010.

Speakers varied from Virginia Tech faculty like Dr. Skip Gardner, Director of the Virginia Bioinformatics Institute to individuals from industry such as Dr. Shirley Hou of Merck Research Labs. A few departmental graduate students also gave seminars.

Below are special articles about two of our colloquium guests.

Mu Sigma Rho Colloquium

*By **John Szarka, Mu Sigma Rho President***

The Mu Sigma Rho colloquium series was a great success this past year, as two distinguished speakers visited the department to discuss their specialty areas in statistics. Dr. Montserrat Fuentes, a Professor in the Department of Statistics at North Carolina State University visited us this past November. She is highly regarded for her work in spatial statistics. Her talk entitled "Clearing the Air" discussed the effects of ozone on public health, introducing us to models of this relationship. As climate continues to change, there may be adjustments in how air quality is regulated. Dr. Fuentes also met with a group of graduate students for an open discussion of topics of interest, particularly for those interested in pursuing a career in academia.

In April, Dr. Douglas Zahn, Professor Emeritus from the Department of Statistics at Florida State University visited the department. Dr. Zahn is well-known for his work in the area of statistical consulting. His colloquium was interactive as the audience watched segments from an actual consulting session. The title of the talk, "Applying Statistical Thinking to Ourselves: An Idea Whose Time has Come?" is indicative of what statisticians should practice. Videotaping a consulting session (or classroom) gives the consultant or teacher a great amount of information regarding what they are doing well and how they can improve. During their two days in Blacksburg, Dr. Zahn and his wife, Andrea, were able to give fresh ideas that should have long-term gains for the graduate student consultants and LISA.

"In the 1960's, statisticians needed to alert the engineering, scientific, and management fraternities to the value of their statistical tools. That challenge continues."
Dr. Stewart Hunter

Dr. Stewart Hunter,
Colloquium Speaker

Stewart Hunter

Dr. Stewart Hunter visited the department during the spring. He gave two seminars where he discussed the History of Quality Control in Statistics and meet with numerous faculty and students.

Dr. Hunter received a PhD from North Carolina State University in Experimental Statistics. He was a faculty member in the School of Engineering and Applied Sciences at Princeton University. Retiring in 1982, Dr. Hunter pursued an active consulting career. He is the founding editor of *Technometrics* and has received numerous awards over the years.

"The beauty of statistics rests in its ability to distinguish between information and data. They are not the same. Information, the essential need of the scientist, engineer, or manager, is the product of their imagination and experience. Distinguishing between information and the data they collect, between the signal and the noise, is a statistical art. So is advice on how to produce information laden data." Dr. Hunter believes.

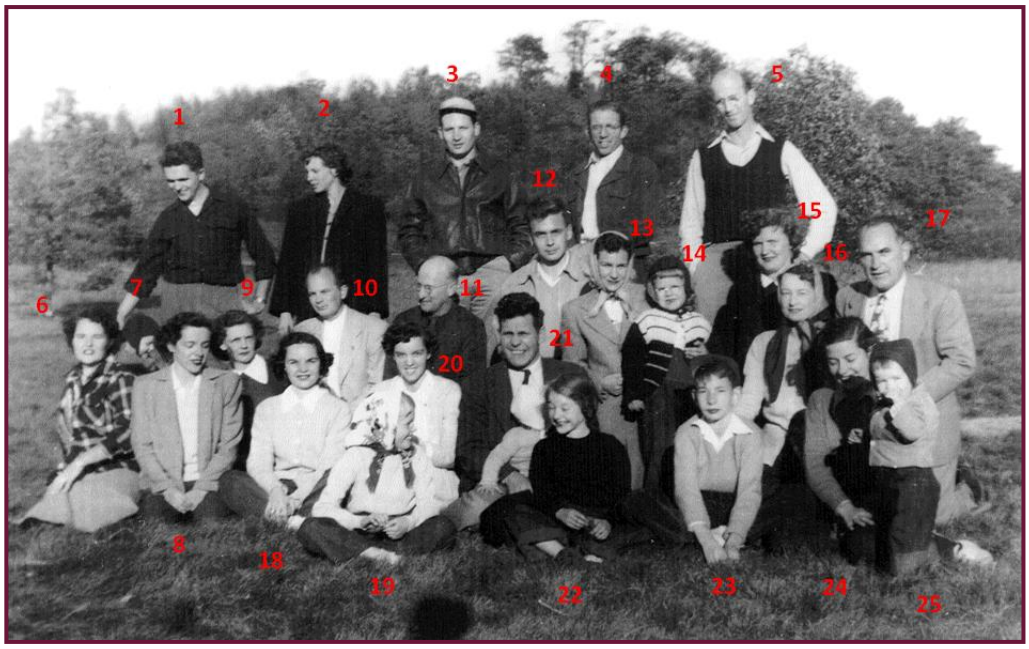
Corporate Partners Conference

*By **Golde Holtzman***

The eleventh annual Virginia Tech Department of Statistics Corporate Partners Conference is planned for October 3 through 5, with the bulk of the activity occurring on Monday, October 4. The highlight of the 2010 conference will be the presence of several potential new partners, including 3M and Merck. The synergy between our partners, faculty, students, and dean made a substantial contribution to our positive development during the past five years. At the October conference, we will celebrate that progress and strategize its extension forward.

Our corporate partners are Becton Dickinson, Capital One, DuPont, Eli Lilly, General Electric, J.P. Research, Minitab, Pratt & Whitney, R.J. Reynolds, and SAS. In addition to strategic guidance, the partners support our programs by funding research and recruitment, by providing short-term and long-term internships for our students, and by hiring many of our graduates. What is more, the partner representatives—many of whom are alumni of our department—serve as role models for the current students they get to know by repeated participation in the annual conference.

For further information about the corporate partners program, see the website (www.stat.vt.edu), or contact Professor Golde Holtzman (holtzman@vt.edu, 540-239-2949).



This image is from the 1950 departmental picnic. Guests included:
1. *Glenn Suter, 2. Kathleen Suter, 3. Mr. Donaldson, 4. Mr. Ruggles, 5. Dr. David Duncan, 6. Mrs. Donaldson, 7. Glenn Suter, Jr., 8. Cynthia Russell, 9. Tillie Rhodes, 10. Raymond (Rocky) Rhodes, 11.J.B. Spahr, 12. Dr. Ralph Bradley, 13. Mrs. Milton Terry, 14. Terry Child, 15. Mrs. Ralph Bradley,16. Isabelle Hoge Harshbarger, 17.Dr. Boyd Harshbarger, 18. Kitty Ruggles, 19. No Data, 20. Clyde Kilpatrick, 21. Prof. Milton Terry, 22. Barbara Harshbarger, 23. John Hoge Harshbarger, 24. Mrs. David Duncan, 25. Duncan child*

Our Current Corporate Partners:

Redefined SAS Course Prepares Students for Base Certification

Marlow Lemons
SAS Course Instructor

"I was surprised and proud of how well I did on the exam. After receiving my certification instantly, I had to tell my professor as soon as I could"
Blake Krippendorf

Preparing students to be certified SAS programmers: that was the theme used by the Department of Statistics to redesign its SAS programming course offered to undergraduate statistics majors. Eric Smith, head of the department, said that the transition from its traditional two-hour course to a three-hour course emphasized the efforts to prepare students to take and pass the national Base Certification exam offered by the SAS Institute. Marlow Lemons, instructor of the new course, said that working with the SAS Institute in constructing the course outline was both challenging and rewarding. "The SAS Institute played a pivotal part in the redesigning the course. They provided the necessary outlines, textbooks, and technology to prepare our students to perform exceedingly above the standards that they require to pass their certification assessment," said Lemons.

The first graduating class of the new course finished in the Spring 2010 semester. Many of the students said that the course prepared them for the certification exam and eased some of the tension in taking it. Andrew Wannamaker, a junior political science and statistics double major, said that the course is at its level in terms of difficulty while being enjoyable. "There were some tough parts of the course, but the detailed lecture notes and small class-size factor made the course enjoyable," said Wannamaker. Allison Moore, also a (junior) statistics major and student that took the class, said that the new SAS course "was easy to learn given that I have not taken a programming course beforehand." According to Moore, the course not only prepared her for the exam, but also encouraged her to begin learning other statistical programming languages.

A trial run of the course took place during the Spring 2009 semester where eighteen students completed the course. Results from a survey given to these students revealed that over half of them planned on taking the certification exam before graduating and two of them had already attempted and passed the exam on the first try. "I was surprised and proud of how well I did on the exam. After receiving my certification instantly, I had to tell my professor as soon as I could," said Blake Krippendorf, a former student who was one of the two students that passed the certification exam. For the Spring 2010 class, all eighteen students said that they expected to take the exam before graduating from college.

According to Lemons, improvements are expected to take place within the next two years. Currently, the SAS Institute provides a significant discount for students. However, the Statistics Department and the SAS Institute are in negotiations to allow students to take the certification exam in the classroom over the Internet rather than requiring them to travel to a commercial testing facility.

Anne Ryan, recipient of the Ellis R. Ott Scholarship

Anne Ryan wins National Award

Anne Ryan has been awarded the Ellis R. Ott Scholarship from the Statistics Division of the American Society for Quality. The Ellis R. Ott Scholarship is a national award presented annually to two recipients. Scholarship awards are based on demonstrated ability, academic achievement, industrial and teaching experience, involvement in student or professional organizations, faculty recommendations and career objectives.

Rose Wilkinson Costain Graduate Fellowship

The Rose Wilkinson Costain Graduate Fellowship has been established in memory and honor of Rose Wilkinson Costain by her husband Dr. John K. Costain. John is a professor emeritus of Geosciences at Virginia Tech.

Rose Costain served as Administrative Assistant to the Graduate Administrator in the Department of Statistics. In addition to maintaining a well-organized graduate program, Rose served as the Editorial Assistant for two publications edited by the departmental faculty, *Biometrics* and *The Journal of Statistical Computation and Simulation*. Rose retired from Virginia Tech in 1992 after 17 years with the department. Dr. Smith feels the department was fortunate to have had such a happy, hard-working individual and misses her wit and wisdom.

"I've seen the difference that a scholarship can make not only in attracting students, but in keeping them," John Costain commented.

The Rose Wilkinson Costain Graduate Fellowship is awarded to a graduate student who has demonstrated outstanding citizenship in the Department of Statistics. This year's recipient is Anne Ryan.

Rose Wilkinson Costain with her husband Dr. John K. Costain

Faculty Spotlight: Leanna House

Leanna House is beginning her third year as an assistant professor of Statistics at Virginia Tech. Since arriving at VT, her research interests have become focused in two major areas: computer modeling applications and data mining via interactive data visualizations.

When few real-world observations are available to assess the behavior of complex physical processes, applied researchers may design deterministic computer models to simulate data (Figure 1). Leanna's research focuses on analyzing the discrepancy between simulators and reality and using data from multiple simulators to quantify the uncertainty of any given simulator. The other facet of Leanna's research is in collaboration with another VT Statistics professor, Scotland Leman. Together, Scotland and Leanna coined the term "Bayesian Visual Analytics" (BaVA) which refers to a visual data mining framework that fosters "bi-directional learning" (Figure 2); in BaVA, experts learn from visualizations and visualizations learn from experts. The idea is to create adjustable visualizations based on Bayesian summaries of data that experts can reconfigure when known structure is missing. BaVA has shown useful in several fields including Education, Genomics, and Text-mining.

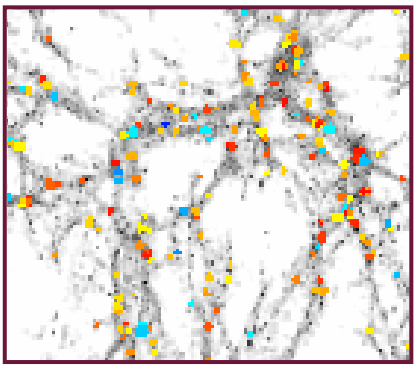


Figure 1: Simulated galaxies (in color) from a computer model called Galform

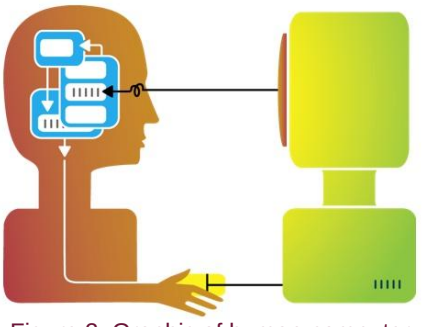


Figure 2: Graphic of human-computer interaction

First Year Float

On a bright but patchy Saturday, August 29, 2009, 15 students, faculty and guests from the Department of Statistics floated down the New River during the inaugural First Year Float. The float was a fun way for first year students to meet folks from the department and be introduced to the culture of statistics here at Virginia Tech. Even the professors had a great time. After floating down the river and through the rapids once, a few students opted to float down again while the rest picnicked on fried chicken leftover from the previous evening's Departmental Picnic. The First Year Float was sponsored by LISA, which paid for the tube rental fee for all of the participating first year students. The second annual First Year Float is planned for August 28, 2010.

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For the Next Issue: We Need Your Help!

The Department of Statistics would like to learn what our former students are up to. Please send a blurb about yourself, your current employment, hobbies, family, or anything else interesting in your life. Be sure to include what year you graduated from the department and the level of your degree. Receiving pictures is especially nice. We would love to feature some of these highlights in our next newsletter issue and on the departmental website, but if you would prefer to just share the word around the department, please let us know.

For further information and to submit your information, please contact Tonya Pruitt, Newsletter Editor, at trpruitt@vt.edu.

Contributing to the Department

The faculty have worked hard to improve the program over the last four years. Our success has been greatly enhanced by the generous support of alumni and friends. We are extremely grateful for contributions from Dr. Jean Gibbons, Dr. Ray Myers, and John Costain.

We can greatly benefit from your support regardless of the size of the contribution.

If you wish to discuss opportunities for supporting graduate students or faculty through your contributions please feel free to give Dr. Smith a call.

Your support and encouragement is greatly appreciated!

Contributing to the department is easy. Simply detach the form below and mail it to the Office of University Development with your contribution.

University Development
Virginia Tech
902 Prices Fork Rd. (0336)
Blacksburg, VA 24061

I want to contribute to the success of the Virginia Tech Department of Statistics.
Fund information:

_____ _____
Name (please print) Relation to the department

I would like my gift to support:

General Department of Statistics	$ _____
Graduate Student Awards:	$ _____
Boyd Harshbarger Award	$ _____
Jesse C. Arnold Award	$ _____
Klaus Hinklemann Award	$ _____
Ray Myers Award	$ _____
Rose Costain Award	$ _____
Undergraduate Student Awards:	$ _____
Clyde Kramer Scholarship	$ _____
Other: _____	$ _____
Total Gift	$ _____