Message from our Chair

Shumei S. Sun, Ph.D.
W. Hans Carter Professor and Chair

Dear Colleagues, It is nice to be recognized for success and accomplishments. The reason for opening my Chair’s Corner column with this truism will become clear as you read on. Yesterday, I was contacted by a high-level FDA official who wanted to interview several of our students at the Master’s and Doctoral levels in order to assess the degree of interest and the fit between our students’ interests and the FDA’s needs in the areas of adaptive clinical trial methodology, toxicology, big data, and data analysis.

Biostatistics positions at the FDA are highly coveted and greatly rewarding, since successful candidates will be involved in critical decisions to approve or decline to approve new drugs, biologicals, and devices, decisions that impact the public health of our citizens. I was very proud of our Department when I received this unsolicited request from the FDA, because it underscored the high repute in which VCU’s biostatistical training and expertise is held by one of the premier agencies of the Federal Government.

FDA’s unsolicited interest in our Department’s greatest accomplishment, our cadre of well-trained students at the Master’s and Doctoral levels, spurred me to look further into the organization of biostatistics and bioinformatics expertise at the FDA. It turns out that there is a major organizational entity known as the Division of Bioinformatics and Biostatistics. This division develops integrated bioinformatics and biostatistics capability to address needs in biomarker development, drug safety, drug repurposing, personalized medicine, and risk assessment. Within this large division are the following three Branches:

Bioinformatics. The research interests of this Branch focus on predictive toxicology, precision medicine, biomarker development, drug safety, and drug repurposing. Most research projects within the Branch are performed in collaboration with scientists at the National Center for Toxicological Research (NCTR) located in Jefferson, Arkansas; at the FDA Product Centers for oversight of drugs, devices, biologics and tobacco; and within the greater scientific community. One of the key endeavors is to construct knowledge bases in the areas of FDA’s responsibility to provide a data-driven decision-making environment for enhanced safety evaluation and precision medicine.

Biostatistics. The research interests of this Branch involve conducting peer-reviewed research of statistical methods to analyze toxicological and molecular data as well as data-mining techniques for pattern identification and signal detection. The branch also provides statistical support related to FDA’s mission to protect and promote public health.

Scientific Computing. This Branch provides critical support and enhancement to infrastructure in the areas of software and database development for research support and research management, high performance computing, systems, integration, and information system asset management and procurement.

The emphasis on toxicology research in two of the Branches reminds us of our own interests in toxicology research and our long-term successful training grant on this topic. The training grant was originated by Chris Gennings and supervised by Kellie Archer after Chris’s removal to Mt. Sinai in New York City. David Wheeler now serves as the principal investigator and Roy Sabo as the Co-Director of this major training grant.

The mention of tobacco in the summary of the Bioinformatics Branch reminds us of the central role the FDA is playing in regard to tobacco and tobacco products. In June, 2009, President Obama signed into law the Family Smoking Prevention and Tobacco Control Act, giving the FDA comprehensive authority to regulate the manufacturing, marketing, and sale of tobacco products. The new law (H.R. 1256) represents the most sweeping action taken to date to reduce what remains the leading preventable cause of death in the United States. The Tobacco Control Legal Consortium, a collaborative national network of legal centers, has prepared a summary of key elements in the new law. The publication is divided into the following sections: 1. Overview 2. Tobacco Product Standards 3. Tobacco Product Marketing Restrictions 4. Tobacco Product Labeling and Advertising
Message from Chair cont...


This new focus of the FDA includes reviewing health and illness data that accrues from alternative tobacco products. VCU is the fortunate recipient of a large grant from the FDA through the National Institute of Drug Addiction to study the safety of electronic cigarettes. **Drs. Tom Eisenberg and Robert Balster** of the VCU Department of Psychology are co-principal investigators on the grant. I am working closely with them to study the **safety and the addiction potential of e-cigarettes**. It has been a privilege to work with these two psychologists to develop randomized studies in adult volunteers that will reveal the benefits (if any) and detriments of e-cigarettes to health.

As you can see, the **FDA’s foundation** rests on excellent and rigorous data collection and analysis. It is gratifying that **VCU’s Department of Biostatistics** is the beneficiary of the FDA’s need to know.

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**Featured Presentations from our Graduate Students**

**Kyle Ferber**
Presented his research entitled “**Extending the Method, Feature Augmentation via Nonparametrics and Selection, to the Ordinal Response Setting**” at ENAR in Austin, TX, March 2016.

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**Victoria García**
Presented her research entitled “**Explaining the Ten-Year Increasing Trend in Kidneys Recovered for Transplantation but Discarded**” at ASA/VAS meeting, University of Mary Washington, May 20, 2016. This presentation was selected as the Runner Up in the Student Paper Competition.

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**Zirui Gu**
Presented his research entitled “**Venous Thromboembolism Rates Associated with Interrupted Prophylaxis and EMR Alerts**” at the Academical Surgical Congress February 2016 in Jacksonville, FL.

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**Rebecca Lehman**
Presented her research entitled “**Modeling Overdispersed Nuclear Bud Count Data Using the Generalized Monotone Incremental Forward Stagewise Method**” at ENAR in Austin, TX, March 2016.
Featured faculty

**Mikhail Dozmorov Ph.D., Assistant Professor**

Dr. Mikhail Dozmorov will celebrate his two years with the Department of Biostatistics in Fall 2016. His research in **computational genomics and epigenomics**, 'big data' analysis and methods development has encompassed a number of collaborative projects with VCU researchers and external collaborators. He has recently published the results of his largest project, **GenomeRunner**, available at [http://www.integrativegenomics.org/](http://www.integrativegenomics.org/). Recently, he has been particularly interested in the survival analysis, extending it on methylation, copy number variation, and miRNA expression data from **The Cancer Genome Atlas (TCGA)**. He is working with one Ph.D. student (Edmund Glass) on the methodology for cell type-specific differential expression analysis. Typically solved with linear regression-based approaches, previous methods overlooked several statistical issues hidden in 'big data'. The rigorous statistical framework developed by them, implemented as an R package, will help to maximize biological understanding of heterogeneous 'omics' measurements while minimizing false positives (manuscript submitted). Dr. Dozmorov has developed the "**Reproducible Research Tools**" course, offered Summer 2016, and will be teaching the "**Statistical Methods for High-throughput Genomic Data**" course in the Fall semester. Future directions of his research include methods development for understanding changes in the 3D structure of the human genome. He applies these methods to understand the mechanisms of complex diseases, such as cancer, from a holistic perspective. His interest in understanding complex phenotypes with 'big data' extends into genomics and epigenomics of aging and longevity.

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Featured student

**Kingston Kang, Ph.D. Candidate**

Kingston is originally from China. He received his B.S. degree in Mathematics with a minor in Physics from Randolph-Macon College. He is starting his fourth year this fall in the Department of Biostatistics. He is interested in analyzing **two-dimensional images**, which is the main topic of his dissertation.

Besides his coursework and dissertation, Kingston has a diverse history of research experiences. He has been a research assistant for two years and worked on different projects including studying **childhood origins for cardiac structure** and function, building multilevel longitudinal models and casual networks for **childhood obesity**, and investigating association between seroma formation and dosimetric parameters in **Contura multi-lumen balloon breast brachytherapy**. He likes doing research and enjoys the feeling of having something at the end of a research and being able to present and share his findings with others.

When Kingston is not working on his dissertation, he is often found playing **piano or watching movies**. His favorite composer is **Frédéric Chopin**, and his favorite movie is **The Shawshank Redemption**. He is a big foodie and likes trying out new restaurants and learning different recipes. He loves **spicy food and dessert**.

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*Click a link below to visit that section of the Biostatistics Department website:*  
**Graduate Program**  
**Consulting a Biostatistician**  
**Biostatistician Research Interests**  
**Biostatistics Research Seminar Series**

*WWW.BIOSTATISTICS.VCU.EDU*
Enar Reunion

As we seem to do every couple of years, we organized another departmental reunion of sorts at ENAR in Austin, TX on March 7, 2016. Several of our current graduate students coordinated the dinner, which included Biostatistics faculty and students as well as a few alumni and former faculty members. ‘Always nice to see different generations of our Biostatistics family share their perspectives…

Facebook

Interested in keeping up with all the news from the Department of Biostatistics on a regular basis? Some of our social media conscious first-year students have reformatted our Facebook page and are updating with “all the news that’s fit to print”. Search for “VCU Biostatistics Department” on Facebook…

Kickball

The Department of Biostatistics organized an extramural kickball team this year. Team Kolmogorov-Smirnov came, played, kicked some balls, and occasionally caught a ball in its inaugural season in the River City Sports and Social Club Spring Kickball league. The 20 player roster included 11 biostatistics grad students, 2 biostatistics professors, students from SBH and Epi, and rounded out with friends and significant others. For many of the players it was their first season of kickball, at least first since PE in grade school. With that said, the team finished with a regular season record of 4-3 for a 10th seed in the playoffs and nobody was injured!! The team is currently preparing for the summer season with grueling individual training regimens and team workouts also known as happy hour. The summer season will start June 7, so come on out and cheer for Team Kolmogorov-Smirnov!!

Alumni Interest

Please contact Russell Boyle or Dipankar Bandyopadhyay if you are interested in presenting at one of our Research Seminars in the 2016-2017 academic year or if you would like to be featured in our newsletter.

By the numbers....

We are excited to report that we will welcome 7 new students for Fall 2016
- 3 Ph.D. in Biostatistics
- 3 M.S. in Clinical Research & Biostatistics concentration
- 1 M.S. in Biostatistics

These most recent additions to our graduate program will have nearly a full week of orientation activities, culminating in our 24th Annual New Student Introduction and Reception on August 23.
Honors

- Lauren Grant, Graduate Student, was awarded First Place at Biostatistics Student Research Symposium (BSRS).
- Amanda Gentry, Graduate Student, was awarded Second Place at BSRS.
- Anny-Claude Joseph, Graduate Student, was awarded Second Place at BSRS.
- Keith Zirkle, Graduate Student, was awarded Second Place at BSRS.
- Camille Hochheimer, Graduate Student, was awarded Third Place at BSRS.
- Rebecca Lehman, Graduate Student, received the Biopharmaceutical Applied Statistics Scholar.
- Edmund Glass, Graduate Student, was awarded the Karl E. Peace Biostatistics Award for Excellence and Scholarship.
- Camille Hochheimer, Graduate Student, received the C.C. Clayton Award.
- Kyle Ferber, Graduate Student, was inducted into the Graduate Student Honor Society, Alpha Epsilon Lambda.
- Edmund Glass, Camille Hochheimer, & Kingston Kang, Graduate Students, were inducted into the honor society Phi Kappa Phi.
- Keith Zirkle, Graduate Student, received the Phi Kappa Phi Award.
- Rebecca Lehman and Keith Zirkle, Graduate Students, received the Phi Kappa Phi Love of Learning Award.
- Dipankar Bandyopadhyay, Associate Professor, was awarded the Outstanding

Recent Graduates

**M.S. in Biostatistics**
- Hangcheng Liu

**M.S. Concentration in Genomics**
- Erik Dvergsten

**Ph.D. in Biostatistics**
- Dr. Jenna Czarnota
- Dr. Lauren Grant
- Dr. James (Sid) Ketchum
- Dr. Kabita Joshi
- Dr. Aobo Wang
- Dr. Hui Wang

**Ph.D. with Concentration in Genomic Biostatistics**
- Dr. Edmund Glass
- Dr. Umaporn Siangphoe
- Dr. Qing Zhou
Other news...

Kellie Archer, Ph.D. And Wen Wan, Ph.D.

- Are leaving the Department of Biostatistics. We are sad to see them go, but wish them both the best of luck. Dr. Archer will be a Professor and Chair in the Division of Biostatistics, College of Public Health at Ohio State University. Dr. Wan will be joining the University of Chicago as a Statistician in Internal Medicine.

Dipankar Bandyopadyay, Ph.D.

- Started as an Associate Editor for Journal of the American Statistical Association
- Started as an Associate Editor for Sankyha-Series B
- Showcased in the NIH/NIDCR’s 2016 Annual New Investigator profile publication
- Elected as a Member of the ASA E.C. Bryant’s Scholarship Committee
- Nominated as a candidate for the Council of Sections Representative of the Biometrics Section of the ASA
- Program Chair of the Biometrics Section of the ASA at 2016 JSM
- Elected as the Council of Chapter Representative to the ASA from the VA Chapter of the ASA

Amanda Gentry, Graduate Student

- Has been invited by Dr. Nathan Gillespie to visit the Queensland Institute of Medical Research (QIMR) in Brisbane, Australia. She plans to attend the Behavior Genetics Association conference on June 20-23, 2016 and then remain in Brisbane to work at QIMR until July 1. Look for her featured story in the Fall Newsletter.

David Wheeler, Ph.D.

- Was the Examiner for a Ph.D. dissertation defense in the Department of Statistics at the University of Auckland in May 2016.

Miao-shan Yen, M.S.

- Congratulations to Miao-shan she recently became engaged!

New Hires

Shanshan Chen, Ph.D.

Joined the Department of Biostatistics January 2016 as an Assistant Professor. With a Ph.D. in Electrical Engineering from the University of Virginia, she primarily focuses on providing high fidelity quantitative assessment of human phenotypes for medical research and clinical practice. In particular, her research interests lie in applying wearable sensing technologies to improve diagnosis and promote general health and wellness.

Tamas Gal, Ph.D.

Joined the Department of Biostatistics March 2016 as an Assistant Professor. Dr. Gal has over ten years experience in cancer informatics services and research. His research interests include Privacy Preserving Data Mining, Natural Language Processing, as well as the application of informatics tools to move forward Precision Medicine and Learning Health Systems. Dr. Gal also enjoys sailing with his family in the Chesapeake Bay.