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

Dear Colleagues, It seems like only yesterday when I received Dean Strauss’s offer letter to join the Biostat faculty at the VCU SOM as chair of the Department of Biostatistics, but in reality that happy happenstance occurred nearly seven years ago. I arrived on November 1, 2007, to assume my new duties. I can remember the awe that I felt then, and still do, when walking in the footsteps of my illustrious predecessors.

The past seven years have flown by, reminding us how quickly time passes when one is exposed to new currents of thought, and when the rate of learning is infinite.

I would like to take this opportunity to thank all of you for working together to achieve an enviable position within the VCU enterprise, now with above 75% average salary support emanating from funding agencies external to VCU, mostly from the NIH, despite the funding constriction which began in 2004 and was exacerbated by the sequestration and return of the NIH budget to its 2012 level. Congratulations to all who have made this funding success possible by insight, originality, and perseverance.

In response to the recession Congress passed the American Recovery and Reinvestment Act of 2009 (ARRA) which provided extra opportunities for us to apply for NIH support, particularly for hardware. The Department was galvanized to action by this unexpected boon. We quickly prepared two applications, one to the NICHD and one to the NIDDK to defray the cost of two Beowulf clusters. The addition of these clusters to our Department has greatly enhanced our computational capability by permitting massively parallel computing and by allowing numerous users to access the same datasets simultaneously. We can now engage in research projects that involve analysis of enormous datasets requiring large amounts of computer time. The arrival of our Beowulf clusters coincided fortuitously with the era of Big Data and Data Science, a topic which was discussed in a previous edition of the Chair’s message. In this era of Big Data, it is important to be able to analyze huge datasets, including the VCU Health Systems electronic health record (EHR).

Our Department’s funding successes underscore the extent of our collaborative research with members of other Departments and Centers across the VCU enterprise. Our faculty members are heavily involved in performing research design, data collection, curation, storage and analysis with co-investigators at the Massey Cancer Center, the Department of Pediatrics, the School of Nursing, the CCTR, and the Department of Internal Medicine.

As I have noted before in previous editions of the Chair’s Message, John Tukey said that being a statistician allowed him to play in everyone’s back yard. This insightful observation reveals a great deal of truth. For example, our Department is currently serving as the data management core of a large, five-site prospective study funded by the NINDS on the effect of febrile status epilepticus (FEBSTAT) in infancy on brain structure and function later in life. The study was recently recompeted and will be funded through 2020. One of the clinical sites is led by Dr. Jack Pellock at VCU.

In addition to playing on epilepsy turf, the Department has recently become involved with documenting the risks and benefits of electronic cigarettes as part of a large grant funded by the tobacco industry and administered by the FDA and the NCI. It has been exciting to be working on a subject that routinely garners headline stories above the fold. If anyone had ever told me that moving to VCU would involve me in the long-term effects of...
Message from Chair cont...

febrile seizures and with balancing the beneficial and detrimental effects of electronic cigarettes, I would not have believed them. It has been a memorable and an exciting journey.

Over the past seven years we have had good opportunities to improve the curriculum, bring new faculty members to the Department and to augment the Department’s expertise in GIS; in statistical genetics; in analysis of high-throughput genomic, metagenomic, transcriptomic, and metabolomic data; in longitudinal multilevel modeling; and in computational and systems biology. It has been wonderful to reach out to alumni of our Biostat Department over the past several years. They bring observations about getting ahead in the “real world” of biostatistics after graduating with a degree from VCU. Alumni were helpful in suggesting new courses that they would have taken had they been available during their own post-graduate education in the Department, and we have instituted several of their suggestions.

Another accomplishment which our Department worked on as a group effort was to craft vision and mission statements for our department. Although these thoughtful statements have stood the test of time, much has happened in the world of biostatistics during the intervening years; so this Fall we are planning to hold another retreat to refine our Vision for Biostatistics and to discuss curriculum development from the perspective of Big Data and Data Science.

Another accomplishment of which we should be proud is our Summer Student Training Program which we started five years ago. Since then every one of our students has performed a summer research training project in close conjunction with a faculty mentor.

Thanks to all of the faculty and staff for your help and support in accomplishing these landmarks.

Featured Presentations from our Graduate Students

Bhanu Evani
Presented his research entitled “Weighted Quartile Sum Regression for Assessing the Association of Environmental Chemical Mixtures & Oral Health” at ENAR, Baltimore, Maryland, March 17, 2014. Co-authored with Dr. Chris Gennings.

Paul Manser
Presented his research poster entitled “Normalization of DNA Methylation Microarrays Using Flexible Local Regression with Empirically Selected Control Probes (FRESCO)” at ENAR, Baltimore, Maryland, March 17, 2014. Co-authored with Dr. Mark Reimers.

Chunfeng Ren

Hadiza Galadima
- Presented her research entitled “Adjusting for Covariates Using a Propensity Score Method when AUC is Used as Measure of Treatment Effect” at 92nd meeting of the VA Academy of Science on May 15, 2014. Co-authored with Dr. Donna McClish.
Kellie Archer, Ph.D.

Before joining the department in 2002, Dr. Kellie Archer worked as a staff statistician for Cancer & Leukemia Group B (now part of Alliance for Clinical Trials in Oncology) Leukemia Correlative Sciences Committee at The Ohio State University. There she provided statistical support for translational research that correlated cytogenetic data (acquired chromosomal abnormalities) to clinical outcome (e.g., treatment response and overall survival). At that time rapid advances were being made in the development of high-throughput technologies for gene expression profiling. Since then her primary research focus has been in the development of statistical methods and software for analyzing high-dimensional data such as data from genomic experiments. For example, her previously funded R03 pertained to developing methods and software for ordinal response prediction, whether her methods were extensions of the heuristic-based classification tree, bootstrap aggregating, and random forest approaches. In her current R01, Dr. Archer is working on methods that complement these heuristic-based machine learning approaches by contributing model-based methods. The penalized ordinal response models and software being developed are capable of fitting ordinal response models to high-dimensional datasets when the ordinal response and high-dimensional feature data are collected longitudinally.

Dr. Archer also serves as the Director of the Massey Cancer Center Biostatistics Shared Resource where she primarily supports cancer center memberships from the Cancer Cell Signaling & Cancer Molecular Genetics Programs. She also supports the School of Nursing’s genomics research efforts, particularly those related to the Breast Cancer Epigenetics Study being led by Colleen Jackson-Cook (Pathology), Debra Lyon (University of Florida), & Angela Starkweather (Nursing).

Nitai Mukhopadhyay, Ph.D.

Dr. Mukhopadhyay’s primary research involves application of biostatistics in Cancer research. He works with the Radiation Oncology department, the applications generally involve radiation treatment planning and execution. His background is in Bayesian statistical theory. He applies Bayesian learning while modelling for these trials, however, he is open to both frequentist and Bayesian ideas while working on data analysis. Issues arising in Cancer research involves accuracy of radiation treatment delivery, modelling variation in anatomy during treatment course, association of treatment parameters with long term outcome of radiation treatment etc.

His methodological research deals with Bayesian modeling for covariance pattern, applications of Bayesian non-parametrics, Bayesian measures of raters agreement and graphical models.

Click a link below to visit that section of the Biostatistics Department website:

Publications List
Graduate Program
Consulting a Biostatistician

Biostatistician Research Interests
Biostatistics Research Seminar Series
Alumni Corner

Spring has arrived at VCU and none too soon. Our “campus”, Capitol Square, is showing off with beautiful flowers along with budding trees, and Richmonders holed up in offices at lunch over the past several months are out and enjoying the warmth.

There was a departmental reunion of sorts at ENAR in Baltimore on March 17, 2014. Our Chair, Dr. Shumei Sun, hosted a dinner including several current and former faculty members and a number of alumni. ‘A good and reminiscent time was had by all….’

Those of us at the “old school” are always eager and happy to welcome back our alumni. As mentioned in a previous issue of Statistically Significant News, we encourage our graduates to return to our fair city and speak to our current students in our Biostatistical Consulting Class or to present a seminar in our Biostatistics Research Seminar Series. Interested? Email Russ Boyle at Boyle@vcu.edu.

By the numbers….

We are excited to report that we will welcome 8 new students for Fall 2014 - 7 PhD in Biostatistics - 1 MS in Biostatistics, Clinical Research & Biostatistics concentration.

Graduate Student News…

- Paul Manser has started a Biostats R users group that meets Thursdays at 3:30 p.m.
- Bhanu Evani completed the VCU Graduate School “Preparing Future Faculty Program”, which included an internship of teaching BIOS 516 Sec 02 “Teams, Communication & Leadership” in Fall 2013 under the guidance of Dr. Chris Gennings.

Featured student

Ghalib Bello  Ph.D. Candidate

Ghalib is originally from Ibadan, Nigeria. Prior to VCU, he did undergraduate studies in Physics at Whittier College and graduate studies in Biophysics at Ohio State University. He recently defended his dissertation, “Application and Extension of Weighted Quantile Sum Regression for the Development of a Clinical Risk Prediction Tool”, with Dr. Chris Gennings. He has accepted a postdoctoral position at the Oklahoma Medical Research Foundation.

Ghalib has previously worked as a teaching assistant for Biostatistics 543/544. Currently, Ghalib is a research assistant for the VCU Department of Family Medicine and Population Health where he is involved in projects focusing on patient-centered healthcare, health outcomes research, and delivery of clinical preventive services. In addition, Ghalib has worked on research projects in the area of Bayesian adaptive clinical trial design and meta-analysis with Dr. Roy Sabo.

In his free time, Ghalib enjoys reading, traveling, biking, and exploring the James River Park trails.
DEPARTMENT LAURELS

Honors

- **Lauren Grant**, Graduate Student, was awarded **First Place Overall** at Summer Student Research Program (SSRP) 2013.
- **Mateusz Makowski**, Graduate Student, was awarded **Second Place Overall** at SSRP 2013.
- **Amanda Gentry**, Graduate Student, was awarded **Best New Presenter** at SSRP 2013.
- **Lauren Grant**, Graduate Student, received the **Biopharmaceutical Applied Statistics Symposium Scholar**.
- **Bhanu Evani**, Graduate Student, was awarded the **Karl E. Peace Biostatistics Award for Excellence and Scholarship**.
- **Kyle Ferber**, Graduate Student, received the **C.C. Clayton Award**.
- **Lauren Grant**, Graduate Student, was inducted into the Graduate Student Honor Society, **Alpha Epsilon Lamda**.
- **Jenna Czarnota, Kyle Ferber, Paul Manser, & Tuyet Nguyen**, Graduate Students, were inducted into the honor society **Phi Kappa Phi**.
- **Hadiza Galadima**, Graduate Student was awarded a **Travel Scholarship** to present her research at the inaugural Women in Statistics Conference in Cary, NC May 16, 2014.
- **Roy Sabo**, Assistant Professor, was awarded **Teacher of the Year**.

Recent Graduates

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<th>Degree</th>
<th>Program</th>
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<tbody>
<tr>
<td>M.S. in Biostatistics</td>
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<tr>
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<td>Ph.D. in Biostatistics</td>
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- **Yangyang Deng** is currently exploring job options.
- **Dr. Ghalib Bellow** will be a Post-doctoral Fellow at the Oklahoma Medical Research Foundation.
- **Dr. Naha Farhat** is exploring her job options.
- **Dr. Hanan Hammouri** is an Assistant Professor in the Department of Mathematics & Statistics at Jordan University of Science & Technology.
- **Dr. Shuxian Sinks** has multiple job applications out and is hoping for interviews soon.

Newly awarded grants & contracts, **November 2013– April 2014**

**Chris Gennings, Ph.D.**

PI on a Columbia University subcontract entitled “2013 Wings over Wall Street Research Projects Proposal.”

PI on a Columbia University subcontract entitled “Biostatistical Analyses of Motor Neuron Disease Risk Factors.”

**Roy Sabo, Ph.D.**

Biostatistician on the Robert Wood Johnson Foundation award entitled “The Health of the States: How States Compare in Health Status and the Factors that Shape Health” with Dr. Woolf as PI in the Department of Family Medicine.

**Adam Sima, Ph.D.**

Biostatistician on the Gerber Foundation award entitled “Evaluation of a Comprehensive Neonatal Resuscitation and Adaption Score” with Dr. Jayaram as PI in the Department of Pediatrics.

Contract PI on the Department of Veteran Affairs award entitled “Cranial-nerve Non-Invasive Neuromodulation for Balance Deficits after Mild Traumatic Brain Injury (PONS)”.

WWW.BIOSTATISTICS.VCU.EDU
Other news...

**Kellie Archer, Ph.D.**
- Was appointed to serve as a **member** of the National Library of Medicine’s Study Section, the Biomedical Library & Informatics Review Committee (BLIRC).
- Serving as **lead guest editor** for a supplement journal **Cancer Informatics** that is focused on computer simulation, bioinformatics, and statistical analysis.

**David Wheeler, Ph.D.**
- Was interviewed by **USA Today** about Cancer & Environmental Risk Factors.
- Was featured in Massey Cancer Center’s “Medlines” which is printed in Brunswick Times-Gazette, Courier Record, Kenbridge Victoria Dispatch, Lake Gaston Gazette-Observer, Mecklenburg Sun, News Progress & South Hill Enterprise.
- Serving as **guest editor** for a supplement journal **Cancer Informatics** that is focused on computer simulation, bioinformatics, and statistical analysis.

**Jacob Wegelin, Ph.D., Brian Bush, MSMIT, Edmund Glass, Grad Student, & Zachary Martin, Grad Student**
- They are part of the Research Team, led by **Dr. Speiss**, on the DOD grant entitled “Prehospital Use of Plasma for Traumatic Hemorrhage”. Their research was featured on **CBS 6**.

**New Hires**

**Le Kang, Ph.D.**
Dr. Le Kang is currently focusing on the performance assessment of diagnostic/prognostic models. He is also interested in high-performance statistical computing. He will be teaching **Computational Statistics** in the Fall.

**Nak-Kyeong Kim, Ph.D.**
Dr. Kim joins us from Old Dominion University. His research interests are mainly on **statistical modeling for genomic data**. He has worked on next-generation sequence data, particularly on ChIP-seq data. His models involve both Bayesian and non-Bayesian approaches with intensive computation. He also worked on **biological sequence analysis** such as multiple sequence alignment to find a motif. He has teaching experiences on courses like statistical computing, mathematical statistics, applied regression analysis.

**Job Opportunity**

**Assistant Professor Position #F36830**
The Department of Biostatistics at the Virginia Commonwealth University (VCU) School of Medicine is seeking to fill a **tenure-track faculty** position at the assistant professor level. This position features collaborations with researchers in the VCU Department of Internal Medicine, focusing on topics such as **HIV/AIDS, sexually transmitted diseases, behavioral sciences, ophthalmology, physical therapy and orthopedics**. We are seeking applicants with graduate training and research interest in longitudinal, clustered and multiple outcome data analyses, causal inference, and observational studies.

**Please click on the position hyperlink for more information**