2016
Biostatistics Department Annual Newsletter

BOSTON UNIVERSITY

Biostatistics faculty and staff at the 2016 Boston University Commencement ceremony. From left, Chary Ortiz, Ching-Ti Liu, Mike LaValley, Josée Dupuis, Tim Heeren, Kathy Lunetta, David Gagnon, L. Adrienne Cupples, Howard Cabral, Jacqueline Milton, and Anita DeStefano

INSIDE THIS ISSUE

Prof. Anita DeStefano and financial administrator Chary Ortiz at the Celebrate Urban Birds event, summer 2016. See story, p. 6.

DON'T MISS THESE:

- The new **MS in Applied Biostatistics:** now accepting applications!
- Introducing the Colton **Cupples Visiting Scholars Fund**

I hope everyone had a nice summer and is ready for an exciting year ahead, with many new initiatives under way. I want to take this opportunity to wish a warm welcome to all new and returning students, but also to the new members of the Biostatistics department.
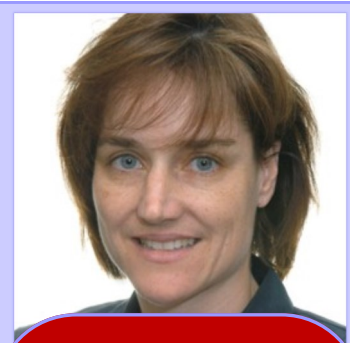
LETTER FROM
THE CHAIR

Josée Dupuis, PhD

There are many new faces around the department, and you can learn more about them in this Newsletter. Marisa Crowley, our new Program Manager, joined in November 2016 and has already put her magical touch on the department, starting with the very informative weekly Newsletter that she initiated. Martin Larson officially made Biostatistics his primary home last November, joining the department as Research Professor of Biostatistics. He brings with him years of experience working on the Framingham Heart Study, with a special interest in methods for missing data. In December, Gina Peloso returned to the department after her post-doctoral fellowship at Massachusetts General Hospital and the Broad Institute. Gina calls herself a "triple terrier" (asked her what that means if you don't know) and brings expertise in statistical genetics. Kaitlyn Grevera, our new Curriculum Coordinator, joined the department in July. Please come around the department to see our new "look," cour-

tesy of Kaitlyn, with wonderfully artistic and relevant bulletin boards all over the department. Finally, Ludovic Trinquart is our newest addition to the Biostatistics Department, joining as Assistant Professor of Biostatistics on September 1st. His expertise in clinical trials, survival analysis and network meta-analysis are a welcome complement and addition to current faculty expertise.

I am pleased to announce the launch of a brand new program: the MS in Applied Biostatistics. This newly approved one-year program will start enrolling students in fall 2017. Please see the next page for more information.

I want to thank the Biostatistics Student Association (BSA) for their mentoring initiative. All new MA and PhD students have been assigned one or two senior students as mentors to help them navigate the requirements of their degree program, and to provide general guidance and advice. This is a great program for new students who may not be familiar with the university or are new to the Boston area. I am glad to see this mentoring initiative continuing for a second year.

Did you know that Boston University founded the first Student Chapter of the American Statistical Association, called BUSCASA? The purpose of this student chapter is to promote statistical practice and research, to unify students across the University with an interest in statistics, and to provide networking opportunities in both industry and academia. Please go to the BUSCASA website for more information and to find out how to get involved.

We have expanded our seminar series this year, with more external speakers and allocated time for students to meet with presenters. All students should take advantage of this opportunity; it is a great way to find out about ongoing research at other universities, and also to find out about employment options upon graduation. I listened in on one such student meeting, where topics ranged from gender equity and job opportunities to work/life balance. It is great to be able to get perspectives from other Biostatistics programs. There are many seminar series, including the Lunchtime Biostatistics series, the Statistical Genetics Seminar Series, the Clinical Trial Working Groups, and the new Econometrics in Public Health Group, among others. Please go to the Biostatistics website for more information.

We have an exciting year ahead. Best wishes for a successful and fun year!

Announcing the new MS in Applied Biostatistics

We are very excited to offer a new [Master of Science in Applied Biostatistics](), which will enroll its first students in Fall 2017 under the direction of Professors Paola Sebastiani and Yorghos Tripodis. The innovative one-year (full-time) program provides an intensive academic foundation along with substantial practical experience in the form of supervised research rotations and 400 hours of practical training. Graduates will be well prepared to enter the workforce as biostatisticians in biomedical research enterprises, pharmaceutical companies, contract research organizations, or government and federal agencies. For more information or to start your application, please contact us at biostat@bu.edu.

August	Fall		Spring		May-June
Accelerated Statistics Training for Biostatisticians (covers probability and statistical inference and computing skills)	Professional Development course		Research Rotation in Biostatistics (100 hours)		Practical Training (400 hours—can be based on an extension of the research rotation, a new rotation with a BU faculty member, a paid internship, or equivalent)
	Multivariable Analysis for Biostatisticians		Generalized Linear Models		
	Statistical Methods in Epidemiology		Analysis of Correlated Data		
	Statistical Genetics I		Applied Statistics in Clinical Trials I		
	Statistical Programming for Biostatisticians	Public Health Surveillance	Bayesian Modeling	Genomics Data Mining and Statistics	

Essential Information:

Total credits: 32

Time to completion, full-time: 12 months

Time to completion, part-time: 24 months

Application deadline for fall admission: rolling admissions, priority deadline January 15

Application procedure: apply online through the [BU School of Public Health]()

Pre-requisites: Bachelor's degree, 1 year of calculus including multivariate calculus, and one course in Linear Algebra to be completed before beginning the program

Biostatistics in the Community

Thirty-five children participated in the Celebrate Urban Birds event organized by Prof. Anita DeStefano and financial administrator Chary Ortiz. As part of the day's activities, the children created aviary cards to distribute to elderly community members.
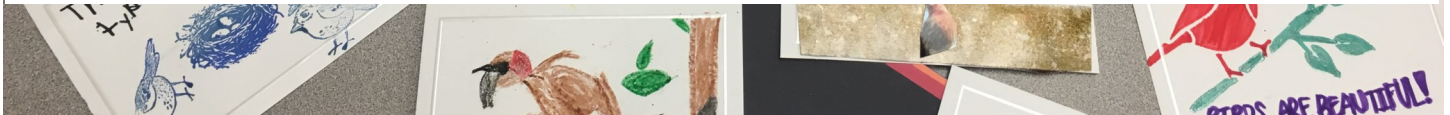
Earlier this year, the Blackstone Community Center, which is located just a few blocks from our offices in the Crosstown Building, was awarded a mini-grant from the Cornell Laboratory of Ornithology's [Celebrate Urban Birds (CUB)](#) Project. The grant application was submitted by Amparo (Chary) Ortiz, financial administrator for the Biostatistics Department and member of the Blackstone Community Center Board of Directors. Ms. Ortiz developed this proposal in collaboration with Biostatistics faculty member Anita DeStefano.

On July 21, 2016, Anita and Chary ran the CUB event for thirty-five children ages 5 through 9 at the Community Center. The goals of the program were to provide a STEM experience for children, engage children with nature, and foster a spirit of community engagement.
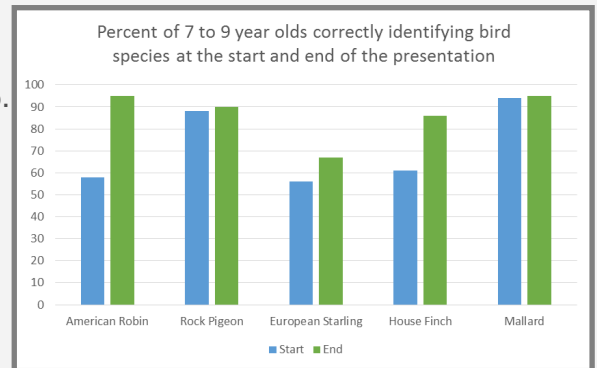
The program began with an interactive presentation featuring six of the CUB focal species. Automatic Response System (ARS) "clickers" were given to each child so they could answer multiple choice quiz questions about bird identification and related topics during the presentation. Use of the ARS provided data on the identification knowledge gained during the presentation. For example, 58% of the 7 to 9 year olds were able to identify an American Robin at the start of the presentation but 95% were able to ID this bird at the end of the day. The children then rotated through three sessions: planting sunflower seeds, creating bird-inspired cards to distribute to elderly community members, and outdoor bird observations. They used binoculars and a scope to search for and identify urban birds in the Blackstone Square and Franklin Square Parks. The children enjoyed putting their new identification skills into use in the outdoors, with the guidance of some expert birders who also participated. Many thanks to Ursula and Dave Goodine and recent MPH graduate Jackson Mesick for sharing their knowledge.

Following the success of the Celebrate Urban Birds event in July, **Chary Ortiz** was awarded a full scholarship to attend the [Workshop for Community Advocates and Grassroots Leaders](#) at the Cornell Lab of Ornithology.

This Celebrate Urban Bird event is intended to be the start of a continued program to bring birding, citizen science, art, and neighborhood greening to the children of the Blackstone Community Center.

WELCOME NEW
BIOSTATISTICS POST-DOCS

Chloe Sarnowski, PhD Statistical Genetics

I have a multidisciplinary background, which includes a 2-year program in bio-informatics and an MPH focused on epidemiology, statistics, and genetics. I did completed my PhD in Statistical Genetics in December 2015 in France, where my research focused on the integration of complex mechanisms in asthma as-sociation studies such as disease heterogeneity, epigenetics and gene-by-environment interactions.

I am currently working as a postdoctoral fellow in Statistical Genetics in the Bio-statistics department, supervised by Dr. Josée Dupuis. My areas of research within the Framingham Heart Study (FHS) are genetics of glycemic traits, reproductive ageing, and neuroge-netics. I am particularly interested in developing methodologies, leading a research project, learning how to analyze sequence data, developing collaborations, teaching and building a network of collaborators.

In my free time, I enjoy exploring new countries. I have traveled extensively within Europe, Canada, and the United States. I also enjoy theatre, poetry and music. I have been playing the celtic harp for 10 years. I am discovering Boston a little bit more each day and I am really enjoying it!

Biqi Wang, PhD Epidemiology and Biostatistics

I am very delighted to join the BU community and looking forward to meeting you! Please call me Becky. I completed a five-year undergraduate program in preventive medicine at Peking University Health Science Cen-ter, including a one and a half year residency at Peking University affiliated hospitals. Then I began a five-year doctoral program in Epidemiology and Biostatistics with specific interest in genomic/epigenomic association studies using twin population. My research experience mainly has focused on exploring the genetic factors that may contribute to the development of obesity. I enjoy painting, cooking, shopping and jogging during my spare time. I am also a super fan of many American TV shows and series (Friends and Big Bang Theory are my favorites!).

2016 L. ADRIENNE CUPPLES AWARD WINNER

The 2016 L. Adrienne Cupples Award for Excellence in Teaching, Research and Service in Biostatistics was awarded to Mark van der Laan, the Jiann-Ping Hsu/Karl E. Peace Professor in Biostatistics and Statistics at the University of California, Berkeley.

Van der Laan gave a lecture on targeted learning with applications to precision medicine, challenging his colleagues to do better than the George Box adage, "all models are wrong but some are useful."

After completing a doctorate in mathematics from the Utrecht University in the Netherlands in 1993, van der Laan joined the department of Biostatistics at the University of California, Berkeley. He is well-known for his work in loss-based super learning in semiparametric models, and the related targeted maximum likelihood estimation approach that his group developed.

Van der Laan is the recipient of numerous awards, including the 2004 Mortimer Spiegelman Award and the 2005 COPSS Presidential Award. However, what caught the attention of the Cupples Award selection committee was his nomination letter by a former student, praising his selfless dedication to mentoring the next generation of biostatisticians. "Mark's mentoring is unmatched," the student wrote. "He has the highest expectations for students and pushes them beyond their self-perceived limits."

The annual Cupples Award recognizes a biostatistician whose academic achievements reflect the contributions to biostatistics exemplified by L. Adrienne Cupples, the award's first recipient. Cupples came to SPH in 1981 and served as the founding chair of the Department of Biostatistics and co-executive director of the Graduate Program in Biostatistics. During her time at SPH, she has advanced the field of biostatistics through extensive publications in major journals and book chapters on collaborative and methodological research, development and effective teaching of a wide range of biostatistics courses, and mentorship of numerous graduate students and faculty.

"Elizabeth demonstrates an incredible passion for the field [and] has the makings of a great leader in the field of public health."

DZIDRA J. KNECHT STAFF AWARD FOR DISTINGUISHED SERVICE

Biostatistics Department Financial Administrator Amparo (Chary) Ortiz was awarded the 2016 Boston University Dzidra J. Knecht Staff Award for Distinguished Service. Chary has supported the department through all of its changes and developments over the

past 9 years and her efforts were honored at this year's Convocation ceremony.
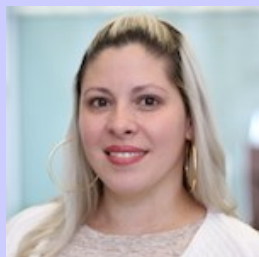
2016 KAYNE PRIZE WINNER

The Herbert Kayne Prize for 2016 was awarded to **Elizabeth Showalter**. The Kayne Award is presented each year to a graduating Master of Public Health concentrator who has achieved high academic standing and has shown a strong interest in biostatistics and public health in general. This award is named for Dr. Herb Kayne, a former long-time faculty member in the Department of Epidemiology and Biostatistics, who taught biostatistics to most, if not all, of the MPH students in the School of Public Health from its founding until his retirement in 1999.

Elizabeth was described by the Biostatistics faculty as "an outstanding student with a great work ethic. Her written and verbal communication skills are exemplary. She demonstrates an incredible passion for the field that is evident in both her work and in her interactions with her peers. She has the makings of a great leader in the field of public health." In this latter regard, Elizabeth truly personifies the ideal recipient of the Kayne Prize.

2016 Biostatistics doctoral graduates Jaeyoung Hong, Seung Hoan Choi, Denis Rybin, Paula Griffin, and Luting Xue

2016 BIOSTATISTICS PROGRAM GRADUATES

PhD

Choi, Seung Hoan
Evaluation of statistical methods, modeling, and multiple testing in RNASeq studies

Griffin, Paula Jean
Biological network models for inferring mechanism of action, characterizing cellular phenotypes, and predicting drug response

Hong, Jaeyoung
Meta-analysis strategies for heterogeneous studies in genome-wide association studies

Rybin, Denis
Placebo response characteristic in sequential parallel comparison design studies

Xue, Luting
Evaluation and extension of a kernel-based method for gene-gene interaction tests of common variants

MA

Dexter, Sara
Lent, Samantha
Short, Meghan
Wang, Yishan
Zhang, Rui

MPH

Ang, Ting Fang Alvin
Arulselvam, Karthik
Autrey, Jessica
Biggs, Shauna
Brown, Chelsea
Chen, Yuting
Cooper, Kristina
Eslami, Mohammad
Fadli, Ela
Faridi, Mohammad
Fortu, Karen
Garcia, Adam
Gu, Daniel
Hall, Julia
Heuer, Kelly
Huang, Fei
Jonnalagadda, Sivani
Kristo, Fjoralba
Kulics, Milan

Latkovic, Michaella
Mack, Jasmine
Negash, Naomi
Ni, Hua
Ning, Boting
Park, Yu Jin
Persson, Rebecca
Petersen, Julie
Purohit, Avirath
Rahmani, Elham
Rusli, Emelly
Sethi, Anuradha
Showalter, Elizabeth
Singeltary, Emily
Singh, Chinar
Valle, Edward
Wang, Aijia
Wang, Wendy
Wang, Ziyue
Yee, Megan
Zaghlul, Sara
Zhang, Shuanglu
Zhao, Sifang
Zhong, Yashan
Zhou, Lujia

WELCOME NEW FACULTY

Martin Larson, Research Associate Professor

I am very pleased to call Biostatistics my "home base" now. I have worked at the BU/NHLBI Framingham Heart Study (FHS) for 25 years, and even though my primary appointments always were outside Biostatistics, I have supervised research assistants and advised doctoral students within the department for most of that time. I am active on several biomedical grants at the FHS, and I enjoy working with medical colleagues as well as Biostatistics students and faculty. My current research interests focus on imputing missing data and on analyzing multiple-state competing risks data.

I love to travel and my favorite hobbies are bridge, golf, ice hockey and sailing.

Helen Jenkins, Assistant Professor

I'm originally from London in the UK but we've been living in Cambridge, MA for just over 6 years. I obtained my Masters degree from the London School of Hygiene and Tropical Medicine and my PhD from Imperial College, London. My main interest lies in infectious disease research that can have a substantial impact on public health. I have previously worked on projects such as estimating the efficacies of polio vaccines in Nigeria to help decision-making to eradicate polio, and analysis of a trial of badger culling to reduce bovine tuberculosis to inform UK policy making. Current projects include producing improved estimates of the global morbidity and mortality due to tuberculosis in children, and identifying geographic hot-spots of drug resistant   tuberculosis. I was previously at Harvard Medical School and have now been at Boston University since September 2015.

I'm married to Bill and we have two daughters: Eve (6) and Penny (3). I like running and did a marathon in 2004; I also like hiking and skiing. All things that I don't have enough time for at the moment! I also love movies and am a regular at the Kendall movie theater as well as attending the Boston Independent Film Festival and the Telluride-by-the-sea festival. I've been very much enjoying integrating into the department and getting know the students, faculty and staff!

WELCOME NEW FACULTY

Gina Peloso, Assistant Professor

I joined the Biostatistics Department in December 2015 and have spent the last year integrating myself into the department. Before joining the faculty, I was a post-doctoral fellow in the Center for Human Genetic Research at Massachusetts General Hospital and at the Broad Institute. And before that, I was a PhD student in none other than the BU Biostatistics Department.

My research focuses on statistical genetics and using genetic markers to better understand cardio-metabolic traits and individual's risk for disease. I am supported by a K01 award from NHLBI to determine what genes in the lipoprotein lipase pathway are related to triglycerides and coronary heart disease. I am also really excited about studies underway using whole genome sequencing, which has a range of issues to tackle before sophisticated analyzes can lead to insights in disease.

This summer I taught BS805 (Intermediate Statistical Computing and Applied Regression Analysis) and this fall I am co-teaching BS858 (Statistical Genetics I) with Kathy Lunetta. I really enjoy teaching and interacting with students and am looking forward to teaching Stat Gen this fall and BS805 again next summer.

In my spare time, I enjoy skiing in the winter and taking my dog, Luna, for long walks. I also have an 8-year-old cat named Fisher. Can you guess how he got his name? Looking forward meeting those I haven't meet yet!

Ludovic Trinquart, Assistant Professor

I received my PhD in Public Health (Biostatistics) from Paris Descartes University in 2013. Prior to the doctoral degree, I graduated from Paris Institute of Statistics in 2005 (affiliated with Pierre and Marie Curie University) and earned an MPH from Paris-Sud University the same year.

My research expertise and professional interests focus on clinical trials, survival analysis, and evidence synthesis (meta-analysis and network meta-analysis). My work also focuses on meta-research, in particular knowledge generation in clinical research.

In my spare time, I enjoy going to see live music, cooking, and I am currently learning Italian.

FACULTY NEWS

In April 2016, the *New York Times* reported on a study of chronic traumatic encephalopathy (CTE) co-authored by Research Associate Professor **Yorghos Tripodis**. The [*NY Times* article](#) described the findings of a [study](#) of 93 former high school and collegiate football players who had sustained repetitive head impacts, and which found that exposure to these head impacts predicts depression, apathy, executive dysfunction, and cognitive impairment later in life. The study was published in the *Journal of Neurotrauma* in June 2016. You can listen to Professor Tripodis's April interview with New Hampshire Public Radio [here](#).

Professor Tripodis is the Associate Director of the Data Core of BU's Alzheimer's and CTE Center and serves as the biostatistician for the NIH-funded studies of UNITE (Understanding Neurologic Injury and Traumatic Encephalopathy) and DIAGNOSE-CTE (Diagnostics, Imaging, and Genetics Network for the Objective Study and Evaluation of CTE).

Associate Professor **Ching-Ti Liu** was a lead author on a study analyzing data from over 87,000 people and found that African Americans and whites share some genetic determinants of Type 2 diabetes, while also carrying some unique genetic loci. According to Professor Liu, "Racial and ethnic disparities in diabetes have been understudied. We feel strongly that the trans-ethnic approach, combined with the genomic annotation information we used, will lead the way forward to understand the implications of the genetic variations underlying type 2 diabetes and other complex disorders." Department Chair **Josée Dupuis** and recent PhD graduates **Jaeyoung Hong** and **Denis Rybin** were among the study's co-authors. You can read the study, published in the *American Journal of Human Genetics*, [here](#).

Professor **Howard Cabral** recently co-authored a study on U.S. maternal mortality rates, published in *Obstetrics & Gynecology* in August. The study found that while maternal mortality rates nationally have been rising in recent years, they fully doubled in Texas between 2011 and 2014, giving the State of Texas the highest rate of maternal mortality in the developed world. A widespread lack of health insurance, maternal poverty, poor access to mental health care, and other factors may help to explain this trend. The study has garnered a great deal of attention, with citations in [USA Today](#), [The Nation](#), [ProPublica](#), [Huffington Post](#). and the [New York Times](#). In fact, according to Altimetric, the study has reached the top 5% for frequency of citations in the press over the past few weeks.

Professors **Alexa Beiser** and **Anita DeStefano** and recent PhD graduate **Seung Hoan Choi** were co-authors on an April 2016 study published in *Lancet Neurology* that helped to elucidate the link between genes and stroke. While associations between certain genes and stroke risk have been identified in the past, the mechanisms by which these genes influenced stroke risk remained a mystery. This new study not only identified a gene, *FOXF2*, that is associated with stroke but also explained its basic mechanism, which is by affecting a particular type of cell found in small arteries and

capillaries, called a pericyte, which is involved in maintaining the blood-brain barrier. By better understanding the role of *FOXF2*, eventually it may be possible to develop treatments for small vessel disease that can lead to stroke. These findings may have implications outside of stroke research, since the effects of *FOXF2* on specific cell structures are suspected to play a role in Alzheimer's disease as well. Read the full article here.

Professor **Alexa Beiser** co-authored ["Incidence of Dementia over Three Decades in the Framingham Heart Study"](link) earlier this year. The study found a progressive decline in the incidence of dementia over three decades, with an average reduction of 20% per decade since the late 1970s. The declining incidence of dementia was paralleled by improvements in most indicators of cardiovascular health over time, though interestingly both of these trends were observed only in people with at least a high school diploma. While the number of cases of dementia among the American population is expected to rise over the next 40 years as the population ages, the study suggests that the rate of new cases may actually be decreasing over time and offers hope that some cases of dementia may be preventable or at least delayed. The study has received significant media attention, cited in [ScienceDaily](link), the [Washington Post](link), [NPR](link), [New York Times](link), [Time Magazine](link), and a recent article in [The Conversation](link), The long-running Framingham Heart Study has been tracking dementia and a multitude of other health events continually among thousands of participants since 1975.

Professor **Paola Sebastiani** was invited to present on her work in the genetics of exceptional longevity at the International Congress of Human Genetics in Japan in April, with a talk titled "Meta-analysis of 4 genome-wide association studies identify new longevity genes". She also traveled to the American Federation for Aging Research in California, where she was a panelist on "Aging research, healthspan, and postponing morbidity". For more information, read one of Professor Sebastiani's recent articles, ["Familial Risk for Exceptional Longevity"](link), which features Biostatistics co-authors **Avery McIntosh** (PhD student), **Lisa Nussbaum** (Biostatistics Data Analyst), and **Meredith Stevenson** (MA alum 2013). Professor Sebastiani has recently been awarded two grants as Principle Investigator: one from the NIH and one from Novartis.

2016 SPH Teaching Award winners:

- Clinical Assistant Professor **Jacqueline Milton** for BS704
- Professor **Tim Heeren** for BS852
- Research Associate Professor **Sarah Preis** for BS723
- Doctoral student **Danielle Enserro** for BS723

Faculty Updates

Associate Professor **Laura White** is now co-director of the MA/PhD programs, along with Professor **Howard Cabral**, who continues in this role.

Professor **Michael LaValley** is co-director of the new MPH Certificate in Epidemiology & Biostatistics. Professor **Tim Heeren** is director of the new MPH Certificate in Design & Conduct of Public Health Research. Read about the new MPH certificate-based program here.

Kathryn Bloore

I am from the Boston area and earned my BS in Mathematics from the University of Vermont. Outside of class, I love to travel, hang out with my dog, and cook.

Alicia Chua

I am originally from Malaysia and earned my MS in Biostatistics from the University of Texas Health Science Center in 2013 and a BA in Mathematics and Biology from the University of the Ozarks in 2010. My research interests include statistical computing with emphasis on methods development for neuroimaging data and neuropsychological data. Prior to joining the Department of Biostatistics at Boston University, I have performed research in the area of Multiple Sclerosis (MS) at the Brigham and Women's Hospital in Boston, MA. Aside from academic activities, I enjoy yoga, watching movies, and travelling. I am a foodie and am trying hard not to over-indulge!

Sarah Conner

I recently moved to Boston from NYC, where I earned my MPH at Columbia University and worked at a healthcare analytics startup. Outside of school, I love reading, concerts, the beach, and seeing new places. My parents named me after a Fleetwood Mac song, but any Terminator jokes are welcome.

Mengtian (Mandy) Du

I grew up in Beijing, China and earned my Bachelor's from UC San Diego and my Master's in Biostatistics from Yale University. Before moving to Boston, I was working in Chicago as an associate in risk management. In my spare time I enjoying reading, traveling and trying new food places.

Peitao Wu

I was born in Jinan, the capital city of Shandong province. I earned my BS degree in Mathematics at Shandong University and then came to the U.S., where I obtained an MS in Statistics from University of Connecticut. In my free time, I enjoy travelling, hiking, and solving Sudoku.

Thomas Zhou

I was born in China but grew up in New York City. I studied Biological & Environmental Engineering at Cornell University and worked for a few years post-graduation as a research associate in cognitive psychology and pharmacology in New York City. My current interests in biostatistics include applications in predictive and preventative care, personalized medicine, and clinical studies. My personal interests include running, basketball, reading, and recently cooking.

WELCOME NEW PHD STUDENTS

WELCOME NEW MA STUDENTS

Chi (Charlotte) Chen

Having recently moved to Boston, I am very excited to embark on my new journey at BU as a Masters degree student. I graduated from University of Michigan in 2013 with B.S. in both Mathematics and Statistics. After that I started my career in NYC as a consultant in the Analytics Practice for PricewaterhouseCoopers. Since that time, I've had a lot of exposure to projects in the sciences, which led me to pursue a Master's degree in biostatistics. In my free time, I like running, swimming, reading books and sharing ideas. I hope to make great memories here at BU.

Huiwen Chen

I am originally from China. I graduated from Boston University last year with a B.A in Mathematics, and am now enrolled in the graduate program for M.A. in Biostatistics. Although I have been in Boston University for five years, this is my first time exploring the medical campus and I am looking forward to studying here for the next two years! I am interested in cooking and baking, and love to try out different restaurants!

Yijing Li

Hello everyone! I recently finished my undergraduate study at Wuhan University in China, and am now here in Boston studying for the MA degree in Biostatistics MA program. I love traveling and I've been to many countries. I hope to have great experience in Boston!

Adlin Pinheiro

I am a part-time Master's student and I am also working full-time as a Program Coordinator for the School of Dental Medicine. I graduated from BU in 2013 with a BA in Behavioral Biology and a minor in public health. Before working at SDM, I was a research assistant at Brigham and Women's Hospital, which led me to pursue a Master's degree in biostatistics. I'm excited to start a new journey at BU and I can't wait for what's to come!

Ben Sweigart

Originally from Rhode Island, I received a B.A. in Mathematics from Brown University before moving to Boston to begin a career in the financial services industry. Most recently I worked as an associate portfolio manager at Athena Capital Advisors, a privately owned, independent Registered Investment Advisor, where I worked with both individuals and institutional clients. While there, I had the opportunity to research the pharmaceutical and biotechnology industries, which sparked my interest in biostatistics and public health. I currently volunteers as a research assistant for the Adenoid Cystic Carcinoma Research Foundation.

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While participating in a two-month visiting scholars program at the SACEMA Institute at Stellenbosch University in South Africa this spring, **Avery McIntosh (PhD)** co-authored an R package, *inctools*, for assay-based HIV incidence estimation, sample size and power calculation. You can find it [here](#).

Kristin Baltrusaitis (PhD) presented this year at the International Workshop on Participatory Surveillance in March and at the Council of State and Territorial Epidemiologists in June. She has also had a few publications this year, with more on the way! Check out [Homozygosity for a Haplotype in the *HBG2-OR51B4* Region is Exclusive to Arab-Indian Haplotype Sickle Cell Anemia](#) and [Variants of ZBTB7A (LRF) and its β-globin gene cluster binding motifs in sickle cell anemia](#).

Along with his research collaborators, **Solaiappan Manimaran (PhD)** has recently developed a software toolkit, BatchQC, to interactively evaluate the impact of batch effects and batch adjustment in a genomic dataset. BatchQC is developed as a Shiny App R-package and is available [here](#). Please refer to ["BatchQC: interactive software for evaluating sample and batch effects in genomic data"](#) in *Oxford Bioinformatics* for more details.

Caitlin Dillon (MPH) has just been hired as a Statistician for the US Army Research Institute of Environmental Medicine (USARIEM), where she will be working with BUSPH alumna Dr. Susan Proctor.

SPOTLIGHT ON STUDENTS

Yi Zuo (MPH) has had a busy year, working on studies related to firearm injury severity, uterine prolapse, Transcatheter Aortic Valve Replacement (TAVR), temporal trends of opiate use, and Whipple procedure readmission rates with collaborators at BMC and BUSM. At least one manuscript, on firearm safety, has already been submitted for publication to *Annals of Internal Medicine*.

Jeremiah Perez (PhD) spent the summer working as a research fellow at the FDA's Center for Drug Evaluation and Research, in the Office of Biostatistics, comparing the operating characteristics of different risk measures such as hazard ratio, risk difference and restricted mean survival time difference, to rule out safety concerns in non-inferiority trials. Jeremiah reports that the experience gave him new insights into the important role statistics play in regulatory decision making.

Prof. Howard Cabral and PhD student Sam Lent, co-hosts of the Biostatistics Department Trivia Night, fall 2016

STUDENT GROUPS: INTRODUCTING BUSCASA

Founded in Fall 2014 by Professor Eric Kolaczyk and graduate students from both the Mathematics and Statistics Department and the Department of Biostatistics, the **BU Student Chapter of the American Statistical Association (BUSCASA)** is one of the first student chapters of the ASA. The mission of BUSCASA is to generate excitement about statistics across the BU campus through interdepartmental events and collaboration with other organizations such as the Boston Chapter of the ASA (BCASA), the Biostatistics Student Association (BSA), and the Undergraduate Statistics Club.

Throughout the year, BUSCASA hosts a variety of events that introduce students to different fields of statistics, build upon analytic and programming skills, and provide networking opportunities with active professionals. Some of these events include the Statistics @ Work Seminar Series, which features local statisticians and data scientists from various parts of industry including pharma, research and development, and insurance; Statistical Practice panel discussions; and short seminars held with the Boston Chapter of ASA (BCASA). They also celebrate World Statistics Day on October 20th by hosting high-profile guest speakers. In addition to planning academic-focused seminars and workshops, BUSCASA also plans social events, such as bowling and rock climbing.

BUSCASA Seminar on Sports Statistics, April 2016, with guest speakers from the Boston Celtics, Boston Red Sox, and BU basketball.

Anyone interested in attending events or getting involved with either BUSCASA or BCASA is encouraged to email BUSCASA@bu.edu and fill out an interest form at the BUSCASA website. You can also find them on Facebook and LinkedIn.

The work and activities of BUSCASA complement those of the **Biostatistics Student Association (BSA)**, which continues its active educational and social presence for all Biostatistics students at BU. Find their events and updates here.

2nd Annual Seminar on Statistical Practice, April 15. The speakers presented the statistical applications of their work. Topics included modeling climate change, estimating potential losses from natural catastrophes, the use of statistical analyses in forensic science, and fetal screening and maternal monitoring methods.

BSα
BIOSTATISTICS STUDENT ASSOCIATION

ALUMNI UPDATES

Sowmya Rao (PhD 2001) is an independent consultant with the Department of Surgery at BUMC. She wrote a chapter entitled, "How statisticians can develop leadership by contributing their statistical skills in the service of others" for *Leadership and Women in Statistics* (ed. Golbeck, Olkin & Gel, Chapman & Hall/CRC Statistics, 2005).

Rachel Hunter-Merrill (MA 2010) is Global Burden of Disease Researcher, Cancer Estimation, at the Institute for Health Metrics and Evaluation at the University of Washington, in Seattle. She welcomes contact from teachers, current students and alumni at rhmerrill@gmail.com.

Chaturia Rouse (MPH 2011) is a Project Manager at the Prevention Research Center for Healthy Neighborhoods at Case Western Reserve University's School of Medicine. She is managing an NIH funded study that focuses on food access and chronic disease. Her team recently had an abstract accepted to APHA this

SUMMER INSTITUTE IN BIOSTATISTICS

In 2003, the NIH initiated the Summer Institute for Training in Biostatistics (SIBS) program to help to overcome a national shortage of biostatisticians. One of the original recipients of the NIH grant, the Biostatistics Department at BUSPH has continued to run the program every year since its inception.

2016 was another successful year for SIBS at BUSPH, with 20 students participating in the six -week intensive summer program. The program continues to grow stronger over time, most recently by partnering with the Jackson Heart Study, the largest single-site, prospective, epidemiologic investigation of cardiovascular disease among African Americans ever undertaken.

Learn more about SIBS on our website or here: "Undergraduate Program Builds Pipeline of Biostatisticians"

Profs. Jacqueline Milton and Anita DeStefano, directors of the BUSPH SIBS program

"We have a lot of students who are math majors, biology or chemistry majors, and they know they might have an interest in applying quantitative methods to the biomedical sciences but they don't really realize what kind of options are out there. That's what this program is for."

-Jacqueline Milton, Clinical Associate Professor Biostatistics, on SIBS

year: "Reimagining the food desert in urban settings."

Han Chen (PhD 2013) has accepted an Assistant Professor position in the Department of Epidemiology, Human Genetics and Environmental Sciences at The University of Texas Health Science Center at Houston, starting in December. Since graduating with his PhD, he has been working as a Postdoctoral Research Fellow in Harvard's

Department of Biostatistics. His research focuses on statistical methods in genetic and genomic research, as well as their applications to epidemiological studies on complex human diseases. In December 2015, he received an NIH Pathway to Independence Award (K99/R00) for developing statistical and computational methods for large-scale sequenching studies.

Shuai Wang (PhD 2015) has developed a novel statistical method, which is described in "General Framework for

Meta-Analysis of Haplotype Association Tests" (*Genetic Epidemiology*, 2015). This method was then applied to data from the CHARGE consortium to identify novel rare variants associated with fasting glucose. Read about the results here.

Graduate Certificate in Modern Biostatistics in Clinical Trials

The national concern regarding the rising costs of health care and the abundance of medical clinical trials being conducted worldwide underscores the need for biostatisticians trained in the design and analysis of efficient clinical trials. This 16-credit certificate program is designed for students and professionals who want to become familiar with a variety of types of clinical trial designs and data, including traditional, Bayesian, and adaptive designs, as well as FDA regulations, ethics analysis, and reporting for clinical trials. The certificate includes both coursework and research . Current students and alumni are welcome to apply.

Curriculum: 16 credits

Estimated time to completion: 18-24 months (part-time)

For more information, please visit our website or contact Prof. Gheorghe Doros at doros@bu.edu.

OPPORTUNITIES IN BIOSTATISTICS

These professional development and continuing education opportunities may be of interest to both current students and alumni

Graduate Certificate in Statistical Genetics

Statistical genetics is a rapidly growing specialty area within the field of Biostatistics, which requires knowledge of genetics, of the technology used to study variability of genes and gene expression in human populations, and of specific statistical approaches used to study these data. The 16-credit Graduate Certificate in Statistical Genetics will provide students with specialized training and acquisition of skills in the analysis of genetic data. Individuals completing the program will be familiar with a variety of types of genetic data (genotyping, expression, sequence data) as well as statistical methods for data summary and analysis, with an emphasis on analysis relating genetic information to human health outcomes. Current students and alumni are welcome to apply

Curriculum: 16 credits

Estimated time to completion: 18-24 months (part-time)

For more information, please visit our website or contact Prof. Anita DeStefano at adestef@bu.edu.
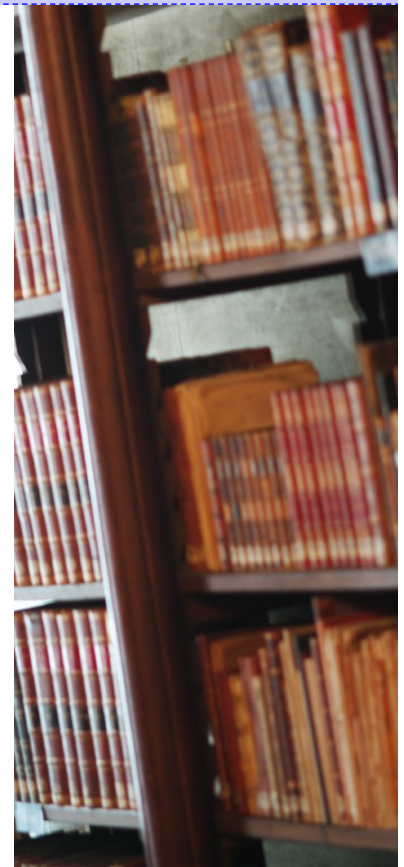
CURRENT FACULTY RESEARCH AREAS

Please contact biostat@bu.edu or the point person listed below for more information about current research projects.

Bayesian Biostatistics

Point person: Paola Sebastiani

Biostatistics faculty are at the forefront of using Bayesian methods for the design and analysis of clinical trials, for modeling epidemics, for analyzing genetics and genomics data, and for modeling longitudinal data from complex designs.

Chronic Traumatic Encephalopathy

Point person: Yorghos Tripodis

Chronic Traumatic Encephalopathy (CTE) is a disease of the brain found in athletes, military veterans, and others with a history of repetitive head impacts. It can currently be diagnosed only by postmortem examination of the brain. The ultimate goal is to develop methods of diagnosing CTE during life through the use of a variety of biomarkers, including MRI scans, MRS scans blood tests, and measures of proteins in spinal fluid.

Correlated Data & Spatial Statistics

Point person: Yorghos Tripodis

Correlated data analysis and spatial statistics involve the use of advanced statistical methods for solving real public health problems.

Dementia and Alzheimer's Disease Research

Point person: Anita DeStefano

Biostatistics faculty work in multiple studies and within large consortia to examine genetic and non-genetic risk factors (e.g. midlife vascular factors, plasma biomarkers, air pollution) for AD and related phenotypes (brain MRI measures, cognitive function, and neuropathological measures in post mortem brain). Identification of risk factors and biomarkers for clinical and preclinical AD may lead to new AD prevention strategies.

Lifecourse Research

Point person: Howard Cabral

Biostatisticians play an important role in the design, conduct, analysis and dissemination of life course research studies. Our on-going projects include the Framingham Heart Study, the Black Women's Health Study, the Million Veterans Study, and numerous studies in reproductive, maternal, and child health. The data from life course studies require complex analytic techniques and potential causal inference that include survival analysis, linear and non-linear mixed models for correlated data, network models, and structural equations and related methods, all areas of interest and expertise in our faculty.

Infectious Disease

Point person: Helen Jenkins

We study both chronic (e.g. HIV and tuberculosis) and acute (e.g. influenza, Ebola, polio) infectious diseases, developing and using biostatistical methods for retrospective and real-time (outbreak) data. We develop novel ways to use spatial and genetic data to understand transmission and methods for estimating infectious disease specific parameters, collaborating internationally (e.g. Brazil, India, South Africa) and with major organizations (e.g. WHO). Areas of interest include HIV co-infection, impact of substance abuse, quantification of community versus household transmission, and disease burden estimation with sparse data.

Longevity

Point person: Paola Sebastiani

Several biostatistics faculty are engaged in research to discover factors promoting healthy aging and longevity. Some of these studies focus on the genetics of longevity and related phenotypes, for example reproductive aging measures such as age at natural menopause in women of the Framingham Heart Study and the Long Life Family Study, or extreme human longevity in the New England Centenarian Study. DNA methylation, gene expression and proteomics data are also analyzed to characterize biological mechanisms important for healthy aging, and to translate finding from genome-wide association studies into healthy aging therapeutics.

Mental Health and Substance Use

Point person: Debbie Cheng

Biostatistics faculty collaborate on numerous studies related to mental health and substance use, ranging from observational studies to clinical trials and local as well as international studies. Biostatistics faculty serve as lead statisticians on studies focusing on topics such as unhealthy alcohol consumption, illicit drug use, smoking, depression, PTSD, and cognitive and neuropsychological development of children. Our faculty provide critical expertise in the design and analysis of these studies based on their extensive knowledge in both the statistical and clinical issues in mental health and substance use research.

Metabolic Disorders

Point person: Ching-Ti Liu

There are rising public health concerns in metabolic disor-

ders whose consequences may be life threatening. Biostatistics faculty have a long history in the identification of genetic and environmental risk factors for these disorders.

Meta-analysis
Point person: Mike LaValley
Meta-analysis provides a set of statistical procedures to combine results across studies on the same topic, highlighting the consistency or inconsistency of the results and evaluating the various threats to the validity of the combined estimate.

Modeling Agreement in Cancer Screening Tests
Point person: Kerrie Nelson
Cancer screening tests often involve subjective classification of a patient's test result by a medical expert using an ordinal scale. Wide discrepancies between experts' classifications have been observed in common tests such as mammography, motivating large-scale studies to examine levels of agreement between experts and to investigate the impact of factors such as rater experience. We develop novel statistical methods and agreement measures for assessing reliability in large-scale studies involving ordinal classification scales and use these methods to assess reliability in recently conducted breast cancer and breast density studies.

Observational Studies, Risk Prediction & Survival Analysis
Point person: Alexa Beiser
Several faculty specialize in the design and conduct of observational studies, measuring associations between exposures and disease. Many studies are based on the Framingham Heart Study, examining risk factors for cardiovascular disease, diabetes, dementia, and accelerated brain aging.

Phamaco-statistics
Point person: David Gagnon
With the increasing availability of large administrative databases in the healthcare field, there is a need for statistical methods to evaluate medications that run the gamut from new methods in clinical trials to large observational studies, and to complement the work being done in pharmacoepidemiology, including propensity scores methods and instrumental variables as well as techniques to model drug effects over time, data reduction techniques and longitudinal data methods.

Sickle Cell Anemia
Point person: Jacqueline Milton
Sickle cell disease is a monogenic disease with a wide variety of clinical manifestations that are likely to be determined by genetic and non genetic factors. Biostatistics faculty are

involved in the design and analysis of studies that look to identify genetic modifiers associated with disease severity. Faculty are also involved in developing novel statistical methods to build models aiming to predict disease severity so that treatment of sickle cell patients can be more tailored to the individual.

Statistical Computing
Point person: Evan Johnson
The continual development of new experimental technologies in the physical and medical sciences present ongoing challenge to develop statistical and computational methods for analyzing and integrating larger and increasingly complex data sets.

Statistical Genetics
Point person: Ching-Ti Liu
Biostatistics faculty develop and implement statistical approaches to maximize information from massive and heterogeneous omics data such as next generation sequencing (DNA & RNA), transcriptomics, epigenomics, proteomics and metabolomics data.

Statistical Methods for Clinical Trials
Point person: Gheorghe Doros
Faculty currently are involved in the development and application of statistical methods for numerous ongoing clinical trials, and publish actively in scholarly journals.

Surveillance
Point person: Laura White
Infectious disease outbreaks are ubiquitous. Biostatistics can help us understand how a disease is spreading and appropriate interventions for containment.

Other Faculty Research Projects and Affiliations

Framingham Heart Study
Million Veteran Project
MAVERIC
Precision Medicine Initiative
Providence/Boston Center for AIDS Research
Black Women's Health Study
Long Life Family Study
New England Centenarians
Risk Evaluation & Education for Alzheimer's Disease
Children's HealthWatch
Uganda Russia Boston Alcohol Network for Alcohol Research Collaboration on HIV/AIDS (URBAN ARCH)
Boston University Clinical and Translational Science Institute

COLTON CUPPLES VISITING SCHOLARS FUND

We are pleased to announce the establishment of the Colton-Cupples Visiting Scholars Fund. This Fund was created in 2016 to bring leaders in biostatistics of national and international repute to the Department of Biostatistics at BUSPH. The scholars are anticipated to present a series of lectures, to conduct seminars with groups of faculty and students, and to meet individually with interested faculty and students in informal settings that allow for personalized interaction, dialogue and the exchange of ideas.

HOW TO GIVE:

To give online, please visit the BU giving website and select Other as your fund option. Please write "Colton-Cupples Visiting Scholars Fund" in the comments box. To give by mail, please send checks payable to Trustees of Boston University to:

Boston University School of Public Health
ATTN: Development & Alumni Relations
715 Albany Street
Talbot Building, 5 East
Boston, MA 02118

Please write "to support the Colton-Cupples Visiting Scholars Fund" on the check memo line.

STAY CONNECTED

Faculty, staff, students, alumni, and friends:
we want to hear your updates!
Please stay in touch!

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BOSTON
UNIVERSITY

SPECIAL EVENTS & CONFERENCES

Biostatistics Department and SPH Events Calendar

Annual IGES Conference
October 24-26 | Toronto, Canada

APHA Annual Meeting & Expo
October 29-November 2 | Denver, CO

ENAR Spring Meeting
March 12-15, 2017 | Washington, DC

SCT Annual Meeting
May 7-10, 2017 | Liverpool, United Kingdom

Game Changer for Athletes: Saving Youth from the Tragedy of Head Impact Sports with Professor Yorghos Tripodis
May 8, 2017 | Boston, MA

JSM 2017
July 29-August 3, 2017 | Baltimore, MD