



The Masters in Applied Biostatistics Program at Boston University



Program Handbook 2020-2021



Biostatistics Program Contacts

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Other Contacts

Biostatistics Department Chair

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617-358-2517

Mission Statements

The mission of the Boston University School of Public Health is to improve the health of local, national and international populations, particularly the disadvantaged, underserved and vulnerable, through excellence and innovation in education, research and service.

The mission of the Department of Biostatistics:

- To teach students the proper conduct of research studies through rigorous study design and appropriate descriptive and analytic methods that enable valid, interpretable conclusions to be drawn
- To collaborate in research projects to ensure that studies are properly designed, appropriately analyzed, and suitably interpreted
- To develop and evaluate new methods of biostatistical analysis and strategies for study design

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Section

1

Introduction

OVERVIEW

Biostatistics is the branch of statistics used in biomedical research, biology, and public health and is at the root of all major change in public health and discovery in biomedical sciences. Biostatisticians work with multidisciplinary teams to design, analyze, and summarize data from experimental science, genetics, clinical trials, and observational studies. Biostatisticians' work is compelling because it helps to distinguish real patterns from randomness, and ultimately leads to sound decisions that promote better health and higher quality of life around the world. From discussions with investigators about fine-tuning research questions to developing appropriate study designs, planning and implementing proper statistical analyses, and writing up the results, biostatisticians are involved in all aspects of research investigations.

Job prospects for biostatisticians are robust and track the projected growth of health care and related areas with a predicted 21% growth in employment opportunities over the next 6 years, according to [Fortune in 2016](#). The Bureau of Labor Statistics predicts a 27% growth in employment opportunities for statisticians between 2017 and 2024, much faster than the average growth of most other occupations

There is a growing demand for biostatisticians with expertise in design and analysis of clinical trials and observational studies, statistical modeling skills for big data including genetic, genomic and health outcomes data, facility with multiple statistical computing programs, strong oral and written communication skills, and the ability to work effectively both independently and in interdisciplinary teams. Boston University's innovative 1-year MS program in Applied Biostatistics will provide you with comprehensive training in biostatistical methods, real-world experience through rotation/internship, and the chance to start building your professional network in Boston.

Section

2

MS in Applied Biostatistics

THE MASTER OF SCIENCE

The MS in Applied Biostatistics prepares students for the challenges of an ever-changing, technology-driven world, giving them the skills to adapt quickly to new data collection and analysis methods. The MS program is an accelerated training focusing on the practical skills needed for future work in fields such as biomedical research, pharmaceuticals, local and national government agencies, nonprofits, and contract research organizations. For a full-time student, the MS program will only take a year to complete, starting with an accelerated Advanced Statistical Training in August, which provides the probability, statistical inference, and computing skills necessary for a solid background in biostatistics. Through the fall and spring semesters, students take all of the necessary classes to acquire the essential skills and knowledge of a biostatistician and perform a research rotation, which provides practical experience working in the field. The research rotation ideally will develop into practical training in the form of a paid or unpaid internship during mid-May, June and July. These rotations allow students to make contacts within the field of biostatistics, building valuable relationships, as well as gaining professional experience. The MS in Applied Biostatistics is meant to be a very practical training program giving students the background and experience they need to build a fulfilling career in the growing field of biostatistics.

Section

3

Admission Requirements

APPLICATION FOR ADMISSION

All applications for admission are to be completed online through [SOPHAS](#). Review all of the application instructions carefully, including the [Frequently Asked Questions](#). The priority application deadline for all applicants to the MS in Applied Biostatistics is February 15.

APPLICATION REQUIREMENTS

- SOPHAS online application
- Official transcripts in English or WES ICAP Evaluation (international applicants) from all colleges and universities attended
- Official report of GRE scores from within the past 5 years (use school code 3087 to send your scores)
- Three letters of recommendation
- Statement of Purpose and Objectives
- Proof of English Proficiency (international applicants)
- CV or Resume

PROGRAM PRE-REQUISITES

- At least the equivalent of a Bachelor's degree; no specific undergraduate major is required
- One year of calculus, including multivariate calculus
- One formal course in linear algebra (with a minimum of two credits)*

***Applicants who lack the linear algebra prerequisite can be accepted on the condition that they complete the requirement before the beginning of the Advanced Statistical Training.**

International students

Students from abroad must submit a [WES ICAP](#) evaluation to SOPHAS instead of their original transcripts. Directions can be found in the link above.

Students must also submit results of the Test of English as a Foreign Language (TOEFL), or the International English Language Testing System (IELTS) with minimum score

TOEFL ibt 100 or higher
TOEFL bpt 600 or higher
IELTS (academic exam only) 7.0 total band score

Applicants who do not meet the minimum requirements of English proficiency are not eligible for admission. This requirement is waived *only* if the student has received, or expects to receive, an undergraduate or graduate degree from a college or university in any of the following countries prior to enrollment in the MS in Applied Biostatistics: The United States, Canada, The United Kingdom, Australia, New Zealand, or Ireland. Studying in the medium of English in a country other than the ones previously listed or studying as an exchange student in an English-speaking country without completing a degree program is not sufficient to waive the English proficiency requirement.

Department-specific admissions questions should be directed to biostms@bu.edu. Questions about the general admissions process should be directed to the School of Public Health at asksph@bu.edu.

Section

4

MS Degree Requirements

OVERVIEW OF THE MS DEGREE

The Master of Science in Applied Biostatistics program is aimed primarily at students with the equivalent of a Bachelor's degree who wish to pursue advanced study in the practical application of biostatistics. It is an intensive one-year degree that will provide training in biostatistical methods, real-world experience through one rotation and one internship, and the opportunity to begin building a professional network. The program prepares students for successful careers in biomedical research enterprises, pharmaceutical companies, local and national government agencies, and research.

MS LEARNING OUTCOMES

By the end of the program, students will have the knowledge, skills and professional confidence to:

- Apply the statistical methods commonly used in biomedical research, including
 - Analysis of variance
 - Linear regression, logistic regression and log-linear models
 - Survival Analysis
 - Mixed models and analysis of correlated data
 - Bayesian Analysis
 - Statistical computing
 - Analysis of observational studies
- Apply basic principles and methods to design, plan, conduct, and interpret biomedical studies in
 - Clinical trials
 - Observational studies
 - Big genomic and genetics data
- Provide effective biostatistical advice as a member of a team with strong
 - Consultancy skills
 - Oral and written communication skills

Students will gain these competencies through a blend of active learning opportunities including in-class and field-based experiences.

MS DEGREE REQUIREMENTS

The Boston University School of Public Health requires students pursuing a Master of Science in Applied Biostatistics to complete:

- the 34-credit curriculum
- the Professional Development Course
- 100 hours of Research Rotation
- 400 hours of Practical Training

All students are required to complete the degree within five years.

MS Curriculum

Full-time students in the MS program must complete a total of 34 credits as follows:

August	Fall (16 cr)		Spring (16 cr)		May-July
BS800 (2cr). Accelerated statistical training	PH746. Professional development course		Research Rotation in Biostatistics (100 hours)		400 hours practical training
	BS806 (4cr). Multivariable Analysis for Biostatisticians		BS853 (4cr). Generalized Linear Models		
	BS852 (4cr). Statistical Methods in Epidemiology		BS857 (4cr). Analysis of Correlated Data		
	BS858 (4cr). Statistical Genetics I		BS851 (4cr). Applied Statistics in Clinical Trials I		
	BS803 (2cr). Statistical Programming for Biostatisticians	BS728 (2cr). Public Health Surveillance	BS849 (2cr). Bayesian Modeling	BS831 (2cr). Analysis of Big Genomic Data	

*BS800 needs to be taken before Fall I, unless applicants can show equivalent material already completed

Grade Requirements: Students must earn a grade of B- or better in all courses applied to the degree.

Policies

All students must adhere to all Boston University School of Public Health [academic policies](#) and the University's [Administrative Policies](#). Note that this information [may change](#) at any time.

MS Part-time Option

Students in the MS program may opt to complete the required 34 credits in two years. A possible part time schedule could look like this:

	Year 1				
August	Fall I (8 cr)**		Spring I (8 cr)***		May-July
BS800 (2cr). Accelerated statistical training	PH746 Professional development course				
	BS806 (4cr). Multivariable Analysis for Biostatisticians		BS853 (4cr). Generalized Linear Models		
	BS852 (4cr). Statistical Methods in Epidemiology		BS851 (4cr). Applied Statistics in Clinical Trials I**		
	Year 2				
	Fall II (8 cr)**		Spring II (8 cr)***		May-July
			Research Rotation in Biostatistics (100 hours)		400 hours of practical training
	BS858 (4cr). Statistical Genetics I		BS857 (4cr). Analysis of Correlated Data		
	BS803 (2cr). Statistical Programming for Biostatisticians	BS728 (2cr). Public Health Surveillance	BS849 (2cr). Bayesian Modeling	BS831 (2cr). Analysis of Big Genomic Data	

*BS800 needs to be taken before Fall I, unless applicants can show equivalent material already completed

** BS806 and BS852 must be taken in Fall I and BS853 must be taken in Fall II.

*** BS851 could be swapped with block (BS849 & BS831) between Spring I and Spring II

Section

5

Course Descriptions

MS IN APPLIED BIOSTATISTICS COURSE DESCRIPTIONS

Comprehensive and up to date course descriptions can be found at <https://www.bu.edu/phpbin/course-search/index.php>.

BS800 - Accelerated Statistics Training

This course is designed for the newly developed MS in Applied Biostatistics program and will cover concepts of descriptive statistics and exploratory data analysis, measures of association in epidemiological studies, probability, statistical inference and computing in R and SAS. It is intended to equip students enrolling in the MS in Applied Biostatistics program with sufficient probability, statistics and computing background to enter 800 levels courses and finish the MS program within a year. The course will be offered during the 3 weeks preceding the Fall semester, and will involve 15 day-long modules. Modules will generally run from 10am to 5pm, combining a traditional lecture (10am to 12pm), a practice session in which students will practice the notions learned in class through exercises (1pm to 2:30pm), and a computer lab (3pm to 5pm) in which the students will learn basic computing in R and SAS and also apply the notions learned in class to real data. [2 cr.]

SPH PH746 - Professional Development Course

This career development course is made up of 6 sessions, each 90 minutes long, designed to give students the tools and techniques to effectively market themselves during the job search process and advance in their career. It will also enable students to research potential career options and to manage job searches and careers as proactively and effectively as possible. [0 cr.]

SPH BS 728 - Public Health Surveillance, a Methods Based Approach

Thacker wrote, "Surveillance is the cornerstone of public health practice." This course will provide an introduction to surveillance and explore its connections to biostatistics and public health practice. Topics will include complex survey design, weighted sampling, capture-recapture methods, time series analyses and basic spatial analyses. Students will learn about available surveillance data, how to analyze these data, and how to write about their findings. Additionally students will propose a new surveillance system or modification of an existing system. [2 cr.]

SPH BS 803 – Statistical Programming for Biostatisticians

This course will cover concepts and skills of intermediate statistical computing and programming. This course will focus on manipulating and reshaping data objects, regular expressions, macros and functions and database management in SAS and R. It will also introduce statistical computing in a computer cluster environment using Linux as well as introducing programming in Python. [2 cr.]

SPH BS 806 – Multivariable Analysis for Biostatisticians

This course will discuss skills required for effective analysis of data set with multiple variables. This course will focus on multiple regression modeling and multivariate analysis, including one-way and multi-way ANOVA, multiple linear regression, non-linear regression, classification and regression trees, automated model search, model fit and diagnostic, experimental design and multivariate analysis (PCA and cluster analysis) with particular emphasis on applications in medicine and public health. [4 cr.]

SPH BS 831 – Analysis of Big Genomic Data

The goal of this course is for the students to develop a good understanding and hands-on skills in the design and analysis of data from microarray and high-throughput sequencing experiments, including data collection and management, statistical techniques for the identification of genes that have differential expression in different biological conditions, development of prognostic and diagnostic models for molecular classification, and the identification of new disease taxonomies based on their molecular profile. These topics will be taught using real examples, extensively documented hands-on exercises, class discussion and critical reading. Students will be asked to analyze real gene expression data sets in their homework assignments and final project. Principles of [reproducible research](#) will be emphasized, and students will be required to become fairly proficient in the use of the [statistical language R](#) and associated packages (including [Bioconductor](#)), and in the use of [R markdown](#) (and/or [electronic notebooks](#)) for the redaction of analysis reports. [2 cr.] -

SPH BS 849 – Bayesian Modeling

Bayesian methods have enjoyed a growing popularity in science and technology and have become the methods of analysis in many areas of public health and biomedical research including genetics and genomics, disease surveillance, disease mapping. Competent biostatisticians nowadays are expected to have knowledge in Bayesian modeling and Markov Chain Monte Carlo methods to be effective collaborators in interdisciplinary research groups. This course will introduce Bayesian statistical reasoning through graphical modeling and describe Markov Chain Monte Carlo methods for Bayesian inference. The course will cover Bayesian methods for estimation of odds and risk in observational studies; methods for multivariable linear, loglinear and logistic regression; hierarchical models; latent class modeling including hidden Markov models and model-based clustering. These topics will be taught using real examples from genetics, genomics, and observational studies, class discussion and critical reading. Students will be asked to analyze real data sets in their homework assignments and a final project. [2 cr.]

SPH BS 851 - Applied Statistics in Clinical Trials I

This is an intermediate statistics course, focused on statistical issues applicable to analyzing efficacy data for clinical trials. Topics include design and analysis considerations for clinical trials, such as randomization and sample size determination, and the application of statistical methods such as analysis of variance, logistic regression and survival analysis to superiority and non-inferiority clinical trials. This course includes lectures and computer instructions. Upon completion of the course, the student will have a working knowledge of how to collect and manage clinical trial data; will be able to analyze continuous, dichotomous, and time-to-event clinical trial data; and will be able to contribute to the statistical portions of a clinical trial study design. The student will also gain the overall knowledge required to interpret clinical trial statistical results. [4 cr.]

SPH BS 852 - Statistical Methods in Epidemiology

This course covers study design and intermediate-level data analysis techniques for handling confounding in epidemiologic studies. Confounding is carefully defined and distinguished from interaction. Course content covers stratification and multivariable techniques for controlling confounding in both matched and independent sample study designs, including analysis of covariance, logistic regression, and proportional hazards models. Model fit and prediction are discussed. Students are required to apply these methods with the aid of computerized statistical packages. [4 cr.]

SPH BS 853 - Generalized Linear Models with Applications

This course introduces statistical models for the analysis of quantitative and qualitative data, of the types usually encountered in health science research. The statistical models discussed include: Logistic regression for binary and binomial data, Nominal and Ordinal Multinomial logistic regression for multinomial data, Poisson regression for count data, and Gamma regression for data with constant coefficient of variation. All of these models are covered as special cases of the Generalized Linear Statistical Model, which provides an overarching statistical framework for these models. We will also introduce Generalized Estimating Equations (GEE) as an extension to the generalized models to the case of repeated measures data. The course emphasizes practical applications, making extensive use of SAS for data analysis. [4 cr.]

SPH BS 857 - Analysis of Correlated Data

The purpose of this advanced course is to present some of the modern methods for analyzing correlated observations. Such data may arise in longitudinal studies where repeated observations are collected on study subjects or in studies in which there is a natural clustering of observations, such as a multi-center study of observations clustered within families. Students start with a review of methods for repeated measures analysis of variance and proceed to more complicated study designs. The course presents both likelihood-based methods and quasi-likelihood methods. Marginal, random effects and transition models are discussed. Students apply these methods in homework assignments and a project. [4 cr.]

SPH BS 858 - Statistical Genetics I

This course covers a variety of statistical applications to human genetic data, including collection and data management of genetic and family history information, and statistical techniques used to identify genes contributing to disease and quantitative traits in humans. Specific topics include basic population genetics, linkage analysis and genetic association analyses with related and unrelated individuals. [4 cr.]

Practical Training

Research Rotation in Biostatistics (100 hours)

The research rotation will provide students with an opportunity to work on a real problem in biostatistics under the supervision of a Biostatistics faculty member. Biostatistics faculty work in many interdisciplinary research teams and MS students will be able to join one of these research teams and take an active role in selected biostatistical analyses. Students are expected to work an average of 5 hours per week for 20 weeks for a total of 100 hours. Faculty from Boston University School of Medicine are supportive of this practical training and committed to provide research opportunities for MS students in their labs. Examples of rotation placements include research groups from the Framingham Heart Study, the New England Centenarian Study, and the Cancer Center. In addition we expect MS students to be able to conduct rotations at the Boston University Data Coordinating Center.

BS910 - Practical Training

Completion of 400 hours (40 hours per week x 10 weeks) of practical training will be required to obtain the degree. The training will start the 2nd week of May and continue through September 24th. This practical training can be based on extension of the research rotations, industry-based internships, or employment in the field of biostatistics. Students are required to write a research paper based on the practical training to be submitted by the end of August to complete the degree.

Section

6

Biostatistics Faculty

The Department of Biostatistics faculty are committed to the roles of teacher and mentor both inside and outside of the classroom. Their research brings depth and a real-life context to the classroom. The department's faculty has analyzed the multigenerational risk factors that contribute to heart disease, which led to a predictive tool for physicians to determine treatment strategies for patients with cardiovascular disease. In partnership with other academic institutions, members of the department have isolated and identified key factors that contribute to higher incidences of breast cancer and other diseases in African-American women. In addition, the department has designed and implemented an important comparative study that pinpoints risk factors for Alzheimer's disease. Members of the department are also actively engaged in clinical trials and methods for public health surveillance, designed to improve clinical treatments and aid the public health delivery system to identify disease hotspots. Faculty bios can be found [here](#) and information about faculty research can be found on the [Research](#) section of our website.



Biostatistics Department Faculty

Faculty Name	Title	Areas of Expertise	Courses Taught	Email and Office
Josee Dupuis, PhD	Professor and Chair, Biostatistics Department	Statistical genetics	BS715 Practical Skills for Biostatistics Collaboration BS860 Statistical Genetic II	dupuis@bu.edu CT321
Alexa Beiser, PhD	Professor of Biostatistics; Associate Chair for Education, Biostatistics Department; Professor of Neurology	Analysis of longitudinal cohort data; survival analysis; lifetime risk analysis; statistical computing		alexab@bu.edu CT325
Howard Cabral, PhD	Professor of Biostatistics, Co- Director of Biostatistics Graduate Program	Analysis of longitudinal data, analysis of ordinal data, clinical trials, statistical computing, effects of missing data on estimation, and ethics in statistical practice.	BS805 Intermediate Statistical Computing and Applied Regression Analysis	hjcab@bu.edu CT310
Debbie Cheng, ScD	Professor of Biostatistics	Design and analysis of clinical trials, longitudinal data analysis, alcohol, substance use, and HIV/AIDS research.	BS722 Design and Conduct of Clinical Trials	dmcheng@bu.edu CT319
L. Adrienne Cupples, PhD	Professor of Biostatistics, Executive Co-Director of Biostatistics Program, Co- Director of Training Grant	Statistical methods for observational Studies, survival analysis, statistical genetics		adrienne@bu.edu CT311
Serkalem Demissie, PhD	Associate Professor of Biostatistics	Statistical genetics; statistical computing; epidemiology; genome wide association study, meta-analysis, and multiple testing; modeling and clustering temporal data for gene expression experimental study		demissie@bu.edu CT315
Anita DeStefano, PhD	Professor of Biostatistics, Director of the Graduate Certificate in Statistical Genetics	Statistical genetics	BS401 Survey in Biostatistical Methods	adestef@bu.edu CT314
Gheorghe Doros, PhD	Associate Professor, Director of the Graduate Certificate in Biostatistics in Modern Clinical Trials	Censored data, data analysis, asymptotics, nonparametric estimation, and clinical trails	BS853 Generalized Linear Models with Applications, BS854 Bayesian Methods in Clinical Trials	doros@bu.edu CT331

Susan Fish, PharmD	Professor of Biostatistics	Clinical trials, human subjects research, research ethics, study designs	BS722 Design and Conduct of Clinical Trials	sfish@bu.edu CT330
David Gagnon, PhD, MD	Research Professor of Biostatistics	Statistical computing, longitudinal data analysis, pharmacoepidemiology, survival analysis, categorical data analysis, phenotyping, machine learning, classification, validation studies, natural language processing, Bayesian analysis, and MCMC methods.	BS775 Applications of Advanced Statistical Methods in Clinical Research, BS821 Categorical Data Analysis	gagnon@bu.edu CT328
Timothy Heeren, PhD	Professor of Biostatistics; Director of MPH Certificate in Design and Conduct of Public Health Research	Biostatistics, analysis of scaled data	BS704 Biostatistics, BS740 Design and Conduct of Public Health Research, BS852 Statistical Methods in Epidemiology	tch@bu.edu CT309
Helen Jenkins, PhD	Assistant Professor of Biostatistics	Infectious diseases, analysis of spatial data	BS825 Advanced Methods in Infectious Disease Epidemiology BS852 Statistical Methods in Epidemiology	helenje@bu.edu CT347
Martin Larson, SD	Research Professor of Biostatistics; Research Professor of Mathematics & Statistics; Research Associate Professor of Medicine	Analysis of 'omics' and longitudinal data, statistical genetics, missing data		mlarson@bu.edu CT-328
Michael LaValley, PhD	Professor of Biostatistics; Co-Director of MPH Certificate in Epidemiology and Biostatistics	Meta-analysis, analysis of longitudinal and correlated data, analysis of survival data, analysis of ordinal and count data, predictive modeling, and arthritis research.	BS810 Meta-Analysis for Public Health and Medical Research, BS820 Logistic Regression & Survival Analysis	mlava@bu.edu CT322
Ching-Ti Liu, PhD	Associate Professor of Biostatistics	Development of statistical/computational approaches for genetics/genomics and bioinformatics studies	BS723 Intro to Statistical Computing BS730 Introduction to Statistical Computing in R, BS806 Multivariate Analysis for Biostatisticians BS860 Statistical Genetic II	ctliu@bu.edu CT329
Chunyu Liu, PhD	Research Associate Professor	Statistical genetics	BS805 Intermediate Statistical Computing and Applied Regression Analysis	liuc@bu.edu CT347
Sara Lodi, PhD	Assistant Professor of Biostatistics	Causal modeling, HIV	BS851 Applied Clinical Trial I	slodi@bu.edu CT316

Kathryn Lunetta, PhD	Professor of Biostatistics	Statistical genetics and genomics and genetic epidemiology	BS858 Statistical Genetics, BS859 Applied Genetic Analysis	klunetta@bu.edu CT313
Joseph Massaro, PhD	Professor of Biostatistics	Pharmaceutical and biologic randomized clinical trials, medical device randomized clinical trials, non-randomized clinical trials, propensity score matching and adjustment, clinical trials in rare diseases, adaptive designs in clinical trials, non-inferiority clinical trials, and risk prediction.	BS851 and BS861 Applied Statistics in Clinical Trials I & II	jmm@bu.edu CT327
Jacqueline Milton, PhD	Clinical Assistant Professor	Statistical genetics and statistical education	BS401 Survey in Biostatistical Methods, BS704 Biostatistics, BS723 Intro to Statistical Computing, BS730 Introduction to Statistical Computing in R, PH717 Quantitative Methods for Public Health	jnmilton@bu.edu CT348
Kerrie Nelson, PhD	Research Associate Professor	Statistical methods for reliability, modeling longitudinal and clustered data, diagnostic testing		kerrie@bu.edu CT318
Prasad Patil, PhD	Assistant Professor of Biostatistics	Machine learning, genomics, personalized medicine, data visualization, prediction, study reproducibility	BS845: Applied Statistical Modeling and Programming in R	patil@bu.edu CT320
Gina Peloso, PhD	Assistant Professor of Biostatistics	Statistical genetics, mapping of complex traits, and cardiovascular risk factors	BS858 Statistical Genetics, BS805 Intermediate Statistical Computing and Applied Regression Analysis	gpeloso@bu.edu CT303
Sarah Rosner Preis, PhD	Research Associate Professor of Biostatistics	Cardiovascular and nutritional epidemiology, epidemiologic methods		srpreis@bu.edu CT327
Lisa Sullivan, PhD	Professor of Biostatistics; Associate Dean of Education, BUSPH	Design and analysis of epidemiological studies, risk functions, clinical trials, undergraduate education	BS700 Essentials of Biostatistics, PH717 Quantitative Methods for Public Health	lsull@bu.edu CT324
Ludovic Trinquart, PhD	Assistant Professor of Biostatistics	Network meta-analysis, meta-research in therapeutic evaluation and epidemiology with complex system approaches, and statistical methods for time-to-event data in clinical trials or observational studies	BS723 Introduction to Statistical Computing, BS730 Introduction to Statistical Computing in R	ludovic@bu.edu CT348

Yorghos Tripodis, PhD	Research Associate Professor of Biostatistics	Longitudinal Studies, Correlated Data, Instrumental Variable Models, Time series modeling, and Measurement Error models.	BS723 Introduction to Statistical Computing BS803 Statistical Programming for Biostatisticians BS857 Analysis of Correlated Data	yorghos@bu.edu CT312
Janice Weinberg, ScD	Professor of Biostatistics	Design and analysis of clinical trials, correlated data analysis, and statistical consulting	BS722 Design & Conduct of Clinical Trials	janicew@bu.edu CT330
Laura White, PhD	Associate Professor of Biostatistics, Co-Director of Biostatistics Graduate Program	Spatiotemporal analysis, statistical modeling of disease outbreaks, infectious disease epidemiology, tuberculosis, and public health surveillance.	BS728 Public Health Surveillance, a Methods Based Approach; EP800 Microbes and Methods: Selected Topics in Outbreak Investigations	lfwhite@bu.edu CT325
Qiong Yang, PhD	Associate Professor of Biostatistics	Biostatistics, statistical genetics	BS845 Applied Statistical Modeling and Programming with R	qyang@bu.edu CT325

Adjunct Faculty

In addition to the faculty based at the School, BUSPH employs a number of experienced public health professionals from the community as adjunct faculty. These adjunct faculty bring a wealth of knowledge to the classroom as well as help build bridges between the communities that surround the Medical Campus. They often connect students with practica, research opportunities, and community events.

Faculty Name	BU Appointment	Primary Appointment/Position	BU Courses Taught	Email and Office
Mark Chang, PhD	Adjunct Professor	Executive Director of Department of Biostatistics and Data Management, AMAG Pharmaceuticals		mchang@amagpharma.com
Lori Chibnik, PhD	Adjunct Assistant Professor	Assistant Professor of Neurology, Harvard Medical School and BWH; Assistant Professor of Epidemiology at Harvard School of Public Health; Associated Scientist at Broad Institute		chibber@bu.edu
Theodore Colton, ScD	Professor Emeritus, Chairman Emeritus of Epidemiology, Boston University School of Public Health	Professor, Chairman Emeritus of Epidemiology, Boston University School of Public Health		tcolton@bu.edu
Kimberly Dukes, PhD	Adjunct Assistant Professor	President, CEO of DM-STAT, Inc.		kim.dukes@dmstat.com
Jayandra Himali, PhD	Research Assistant Professor	Research Assistant Professor, Neurology, BU School of Medicine	BS723 Introduction to Statistical Computing	jhimali@bu.edu
C. Robert Horsburgh, MD, MUS	Professor	Professor and Chair of Epidemiology, BUSPH		rhorsbu@bu.edu
William Evan Johnson, PhD	Associate Professor	Assistant Professor of Medicine, Division of Computational Biomedicine, Boston University School of Medicine		wej@bu.edu
Robert A. Lew, PhD	Associate Professor	Senior Biostatistician, Veterans Affairs	BS854 Bayesian Methods in Clinical Trials	rlew@bu.edu
Elena Losina, PhD	Adjunct Associate Professor	Associate Professor of Orthopedic Surgery, Brigham and Women's Hospital		elosina@partners.org
Sandeep Menon, PhD	Adjunct Assistant Professor	Director of Biostatistics, Bio-therapeutics Research, Pfizer		sandeep.m.menon@pfizer.com
Carly Milliren, MPH		Statistical Programmer, Children's Hospital Boston	BS723 Introduction to Statistical Computing	cmillire@bu.edu
Michael Pencina, PhD	Adjunct Associate Professor	Director of Biostatistics, Duke Clinical Research Institute		michael.pencina@duke.edu

Soe Soe Thwin, PhD	Adjunct Assistant Professor	Biostatistician, Veterans Affairs		sst@bu.edu
Moshe Vardi, MD	Adjunct Professor	Global Clinical Development Lead, Shire		vardi@bu.edu
Vanessa Xanthakis, PhD	Instructor	Instructor of Medicine, Investigator for the Framingham Heart Study, Section of Preventive Medicine and Epidemiology, Department of Medicine BUSM		vanessax@bu.edu

Biostatistics MS Degree Audit Sheet (34 credits)

I. AST: 3 week course (2 credits)	Semester Completed	Grade Earned	Credits Earned
AST BS800: Accelerated Statistics Training			
II. MS Degree Required Courses: (32 credits)	Semester Completed	Grade Earned	Credits Earned
SPH PH746 Professional Development Course			
SPH BS728 Public Health Surveillance			
SPH BS803 Statistical Programming for Biostatisticians			
SPH BS806 Multivariable Analysis for Biostatisticians			
SPH BS831 Analysis of Big Genomic Data			
SPH BS849 Bayesian Modeling			
SPH BS851 Applied Statistics in Clinical Trials			
SPH BS852 Statistical Methods in Epidemiology			
SPH BS853 Generalized Linear Models			
SPH BS857 Analysis of Big Genomic Data			
SPH BS858 Statistical Genetics			
III. Practical Training	Date of Completion		Grade Earned
Research Rotation in Biostatistics (100 hours)			
BS910: Practical Training (400 hours)			

MS Requirements Checklist:

- Credits total: 32 MS graduate credits or approved transfer courses.
- Grade of B- or better in all courses applied to the MS
- All incomplete classes completed and grades posted
- Submitted [graduation application](#) to SPH (2-3 months prior to graduation)