Master of Science in Biostatistics Program 2024-2025

Student Handbook

UK College of Public Health

Last Updated: 7/15/2024

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Purpose of Handbook

Welcome to the University of Kentucky Master of Science in Biostatistics Program (MSBST)! You have worked hard, and we are excited to be a part of this important step in your education. We look forward to working with you and supporting your educational journey into biostatistics.

This handbook is a supplement to any University or college level information that you have received. The purpose of this handbook is to provide you with policies and information specific to the MSBST program.

It is important that you read this handbook!

We have worked hard to keep it relevant and succinct. The guidelines in this book apply directly to you and detail our expectations of your behavior and performance. Keep and refer to this handbook throughout your program of study. When we update policies, procedures, and guidelines, we will notify you via email and publish the updated handbook on the MSBST Program Canvas Homepage and the MSBST website.

Our goal is your success. If you have questions or concerns, contact us!

Amanda Ellis, PhD
DGS Master of Science in Biostatistics Program
Associate Professor
amanda.ellis@uky.edu

Welcome from the College of Public Health
Message from the Dean

Dear MS Biostatistics Students,

In the College of Public Health, we train health champions. Champion has different meanings. It can mean someone who is a victor, the winner. It can also mean someone who fights for a cause or works on behalf of others. So, what does a health champion mean here? In the College of Public Health, we train people who fight, work, strive, struggle, persist for the health of others. For us, it is more than just being health-focused or treating people who are sick. At the University of Kentucky, our health champions fight for prevention – our work is needed to keep communities from harm, from disease, from injury.

Health champions solve problems. Public health problems are complex. Our problems involve human perception, stigma, behaviors. They include a person's history, what has happened to them in their lives. Public health problems need biology, chemistry, computing. It matters where a person lives, where they grew up, who influences them and how they first learned about health. The path to discovery in public health is not fast or simple. You may be surprised to hear stories from faculty and staff about times when they failed. Failure is expected. What defines a health champion is how you come back when you experience defeat.

As a member of our student body, there are many people here to support you. I encourage you to reach out early and often to the faculty, to staff, and to other students. Our staff in Student Engagement & Academic Success (SEAS) care about your academic progress, your well-being, your success and development as a student. Department chairs and program directors are available to you to talk about experiences in the program and classes. Your faculty are training you to be the next generation of public health scientists and to champion for the health of others – they want to talk to you, teach you, learn with you. Take every opportunity to connect with the faculty, staff, and students of the College. Success in public health never occurs in isolation – this is a field where you cannot do it alone. Public health is team science. Our approach to solving problems is made better because we work together. Part of your education here will be the realization that working with others is the path to impact.

While a learner in our college, you will encounter people from many different backgrounds, disciplines, and perspectives. Our college is comprised of four academic departments: Biostatistics, Epidemiology and Environmental Health, Health Behavior and Society, and Health Management in Policy. Within these four departments, the core areas of public health are represented. Many of us (myself included) come to public health from a variety of pathways – our training is often as diverse as our people. However, each one of us belongs here. We belong here because of a shared commitment to make a difference. We belong here because we believe that the health of others deserves a champion. We belong here because we know that prevention is possible. You belong here, too.

On behalf of the faculty and staff of the College, it is my pleasure to welcome you to the College and congratulate you on the important decision to pursue advanced training within public health.

Sincerely,
Heather M Bush, PhD
Dean for the College of Public Health

College of Public Health Vision and Mission

In 2004, the University of Kentucky established the College of Public Health to develop transformative solutions to health challenges through teaching, research and service efforts. Located in Lexington, Kentucky, we take seriously our public health responsibility to all communities and individuals in the Commonwealth of Kentucky and beyond.

Our state is at the epicenter in some of the major public health challenges. With that in mind, we are dedicated to transforming and assisting in the creation of a healthier community, state, and world for everyone.

Our vision is to be the catalyst and leader of positive change for population health. Our mission is to develop health champions, conduct multidisciplinary and applied research, and collaborate with partners to improve health in Kentucky and beyond. https://cph.uky.edu/about

Vision Statement

To be a catalyst of change for population health

Mission Statement

To develop health champions, conduct multidisciplinary and applied research, and collaborate with partners to improve health in Kentucky and beyond.

College of Public Health Values:

Academic Excellence
Prepare public health champions to address public health issues efficiently and effectively.

Accountability
Integrate accountability to internal and external stakeholders in our education, research, and service provided by members of our college.

Community Engagement
Leverage the expertise and resources of our College to engage with each other, empower citizens and mobilize communities to improve public health.

Diversity & Inclusivity
Envision and strive to foster a welcoming, diverse and inclusive environment characterized by open communication, tolerance, inclusiveness, collegiality, and civility.

Equity
Embrace an organizational culture that ensures fairness, openness, and collaboration.

Transdisciplinary Discovery
Facilitate rigorous transdisciplinary and interdisciplinary research collaborations to address complex public health issues and problems.

Integrity
Commit to a culture of honesty, transparency, ethical behavior, in all relationships and activities.

Welcome from the Department of Biostatistics
Message from the Chair

Dear MS-BST Students,

Welcome to the University of Kentucky, College of Public Health's Master's program in Biostatistics! We are so pleased that you have chosen such a meaningful field of study and our program to take this important step in your education.

Our College is dedicated to high quality teaching and research, and we are deeply committed to advancing public health by training the next generation of biostatisticians. Our goal is to provide you with rigorous training in a professional and supportive environment. In-depth learning experiences will provide you with the top-tier training necessary to address the public health challenges facing our world.

While in our program, we encourage you to take advantage of all learning opportunities, including participation in various lecture series, workshops, and seminars offered across campus. UK is a dynamic and vibrate home for research!   Ultimately, you will demonstrate expertise in a specific content area for your dissertation research, but these experiences will provide you breadth of understanding of public health and how biostatistics can be applied to solve issues related to chronic disease, aging, substance use, health disparities, and many other public health issues.

As Chair, I recognize the important role this Master's program plays in our collective public health, and I will seek to constantly improve it. You are now part of the inclusive and supportive community of the Department of Biostatistics. We encourage you to reach out with suggestions and feedback. Please also let us know what facets of the program work well.   We look forward to partnering with you in this phase of your education and career.

We wish you all the best and much success at UK and beyond!

Sincerely,

Philip Westgate, PhD
Professor and Acting Chair of Biostatistics
University of Kentucky
College of Public Health
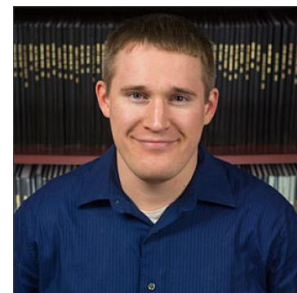
Program Philosophy

It is the philosophy of the Master of Science in Biostatistics Program Faculty that students be provided a foundation of experiences to succeed in a challenging yet supportive educational environment. Student learning experiences are intended to support training and professional development as biostatisticians. Our values include:

- **Experiential learning:** We recognize the need for students to be ready to contribute meaningfully to the workforce upon exit from the program. We value providing students with educational experiences that reflect the challenges and rewards of working with data in the real world. Once entering the workforce, we expect our graduates to be well-prepared as the first line of defense in the battle against poor data analysis and misuse of data in a data-driven world.

- **Balance of theory and application:** We strive to provide students with an educational experience that will equip them with the background and intuition to learn and implement new methodologies. We recognize that the skills needed to understand and apply new methodologies are not the same skills required to develop new methodologies. We value approaches such as demonstration and simulation for exploring theoretical concepts.

- **Software Training and Application:** We recognize that the software of today may not be the software of tomorrow. While we aim to provide students with the skills to code in some of today's most popular languages, we value the ability to grow and learn new computational languages such that students are positioned to adapt to using other languages in the future. The skills include computational thinking, understanding the current landscape of available statistical software, and knowing the advantages and disadvantages of the most commonly used software.

- **Collaboration:** We value students working with biostatisticians and non-statistical collaborators in the team science landscape. As a biostatistician, the ability to collaborate with others requires interpreting and translating in both technical and non-technical language. We value collaboration at different levels, including between students and between students and faculty. We recognize that each individual brings their strengths and knowledge to collaborative projects and that no individual is a master of all. As a group of faculty with different areas of expertise, we demonstrate the importance of collaboration through collaborative teaching and training practices. In the workforce, biostatisticians can play many different roles as collaborating scientists. We aim to prepare students to recognize and advocate for their role and, ultimately, to succeed as team scientists.

- **Diversity and Equity:** We value diversity and equity in the field of biostatistics. We recognize that there will be students who have health-related training but do not have the traditional quantitative training usually required for a biostatistics program. Students with non-STEM undergraduate degrees may have strong domain knowledge but less experience with quantitative skills. Students in minority groups underrepresented in STEM fields may have had fewer opportunities for quantitative training throughout their educational history. We value students from all educational backgrounds and strive to provide pathways for these students to enter the program and excel.

Expectation for the Director of Graduate Studies (DGS)

The DGS is the representative of the Graduate School and is responsible for facilitating the admissions process, approving electives, and approving requests for exams. As the chief representative of the students in the department, the DGS also consults with the Department Chair about course schedules, serves as a resource for information about funding, and works with department administrative staff for communications to students. Administrative staff in the department include:

Biostatistics

- Rebecca Ritchie (Administrative Assistant)

The administrative assistants in each department are available to help students navigate within the department and program. The Department Operations Managers are involved with supporting assistantship assignments and payments. These administrative staff work with the department chairs and DGS to help students navigate program questions and issues, including communication and college or university processes. Most processes now occur electronically; students should pay careful attention to the University's Academic Calendar to meet deadlines for submission of key forms.

Expectations for Program Faculty

The Graduate School categorizes faculty by graduate programs. Not all faculty at the University of Kentucky are defined as graduate program faculty. Faculty in the Department of Biostatistics are assigned as program faculty. Within the Graduate School, this program is designated as MSBST.

Program faculty will attend regularly scheduled MSBST program faculty meetings and will participate in programming assessment and planning. Program faculty teach in the MSBT program, are available to students for mentoring and professional development.

Program Faculty

Reuben Adatorwovor

Dr. Reuben Adatorwovor is an Assistant Professor in the Department of Biostatistics at the College of Public Health. He is affiliated with the Center for Health Equity Transformation (CHET) and the Markey Cancer Center (MCC) at the University of Kentucky. His recent work focused on collaborative and statistical methodology development for survival analysis in the presence of competing risk. In particular, his applicable research includes cancer survival, clinical trials, substance use disorder (cocaine, alcohol, opioid), infectious diseases, telehealth and teledentistry, diabetes, nutritional epidemiology, and bone health. He develops parametric, nonparametric, and regression methods for relaxing the underlying assumptions for current survival analysis methods for population-based studies. He is fascinated by the unknown (machine and deep learning algorithms).

Heather Bush

Dr. Heather Bush is Professor and is currently serving as Dean of the college. Dr. Bush also serves as the Kate Spade & Company Endowed Professor in the Center for Research on Violence Against Women and as co-director of the Biostatistics, Epidemiology, and Research Design Facility in the UK Center for Clinical and Translational Science. Bush is also a prior recipient of the Dean's Outstanding Teaching Performance Award, the Golden Apple Award for Outstanding Teaching, and the Provost's Outstanding Teaching Award. Named University Research Professor for 2018-19, Bush focuses her scholarly work on vulnerable populations, as she examines issues of women's health, the impacts of sexual violence on

health, and the prevention of sexual violence. As an investigator, she works to promote the engagement of populations typically underrepresented in research. She also prioritizes collaboration, describing herself as "a team scientist with an overall goal of transforming approaches to scientific inquiry by engaging as an active partner in research teams dedicated to making a difference in the health of populations."

Bush is currently partnering with investigators at KIPRC to (1) translate bystander-based training to promote harm reduction in college populations and (2) develop a novel surveillance system for maternal mortality and morbidity that incorporates injury related to sexual violence, substance use, and mental health. Prior to her faculty appointment, she served as a senior biostatistician in industry.

Richard Charnigo

My main interests in statistical theory/methodology are nonparametric regression and mixture modeling. I have been also involved in many studies relating to cardiovascular health. Through students I have more recently become involved in research on Alzheimer's disease, health care quality, and nephrology.

Dr. Charnigo completed his PhD in Statistics at Case Western Reserve University and have been a faculty member at the University of Kentucky since 2003. His primary appointment is in the Biostatistics Department (College of Public Health), and he have a secondary appointment in the Dr. Bing Zhang Statistics Department (College of Arts and Sciences).

Meredith Duncan

Dr. Meredith Duncan is an Assistant Professor in the Department of Biostatistics. She is Kentucky native and has bled blue for as long as she can remember. Her PhD is in Epidemiology, but she has a strong analytic background and considers herself an Applied Biostatistician. She has worked in cardiovascular research since 2013. Her personal research focuses on cardiovascular health disparities among people of color and LGBTQ+ individuals. Dr. Duncan is currently a UK CCTS KL2 scholar; in her career development award, Dr. Duncan seeks to incorporate social determinants of health and markers of structural racism into cardiovascular disease risk estimating equations to lay the foundation for removing race as a "risk factor" when estimating risk. Dr. Duncan teaches graduate-level courses aimed at equipping students with skills in scientific writing and survival analysis.

Amanda Ellis

Dr. Amanda Ellis is an Associate Professor in the Department of Biostatistics. Dr. Ellis joined the college as an Assistant Professor in 2020. Her focus is on graduate education, course and curriculum development. She earned her undergraduate degree in Mathematics from the University of Kentucky. She also earned her M.S. and Ph.D. in statistics from the University of Kentucky. She previously taught at Eastern Kentucky University where she focused on undergraduate and graduate education.

David Fardo

Dr. David Fardo is a Professor of Biostatistics and the inaugural Stephen W. Wyatt Endowed Professor of Public Health. He serves as Affiliate Faculty in the Sanders-Brown Center on Aging and as co-Investigator in the National Institute on Aging (NIA)-funded UK Alzheimer's Disease Research Center (ADRC).

Dr. Fardo is currently the principal investigator of two awards from the NIA, researching genetic risk factors contributing to various neuropathological endophenotypes and multiple neurodegenerative

diseases. His currently funded collaborative work ranges from therapeutic targeting of the genes TREM2 and SHIP1 for AD to investigating novel pathogenetic mechanisms for hippocampal sclerosis and risk factors for conversion to mixed dementias.

He has developed several courses across the spectrum of CPH degree programs and offer graduate courses in statistical genetics. He has served UK and CPH in a variety of roles including as an Academic Leadership Academy Fellow and as Chair of CPH Faculty Council and the Appointment, Promotion and Tenure Committee.

Chris McLouth

Dr. McLouth joined the University of Kentucky in 2019 and is a member of the Biostatistics Consulting and Interdisciplinary Research Collaboration Lab (Biostat CIRCL). He earned his undergraduate degree from the University of Michigan and his doctorate from the University of New Mexico in Quantitative Psychology. Prior to moving to Lexington, he spent time working as a biostatistician in the Department of Biostatistics and Data Science at Wake Forest School of Medicine. Dr. McLouth has experience with a wide range of study designs and statistical analyses, including experimental designs, clinical trials, longitudinal data analysis, and models incorporating latent variables.

Emily Slade

Dr. Emily Slade is an Assistant Professor in the Department of Biostatistics and the Director of the Biostatistics Consulting and Interdisciplinary Research Collaboration Lab (Biostat CIRCL).

She collaborates with researchers in a wide range of biomedical areas through her work with the Biostat CIRCL as well as though the Biostatistics, Epidemiology, and Research Design (BERD) Core in UK's Center for Clinical and Translational Science. Dr. Slade is co-investigator on multiple projects in the areas of opioid use disorder and health disparities in underserved populations. In addition to practicing collaborative biostatistics in these areas, Dr. Slade also studies the role of collaborative biostatisticians on multidisciplinary research teams, with an eye to training strategies for biostatisticians to be effective team scientists. She also promotes the value of team science through teaching and mentoring students in statistical consulting and collaboration skills.

Svetla Slavova

Dr. Svetla Slavova is a Professor in the Department of Biostatistics. She is also a faculty associate in the Kentucky Injury Prevention and Research Center at the University of Kentucky (UK). Her research applies modern statistical methods to address important public health issues.

Dr. Slavova has been the principal investigator on grants funded by the U.S. Food and Drug Administration (FDA), the U.S. Department of Justice, the Centers for Disease Control and Prevention (CDC), and the National Highway Traffic Safety Administration (NHTSA). She is nationally and internationally recognized for her research, especially in drug overdose surveillance, which has informed drug overdose prevention policy and practice. Her research has been critical in combating the opioid epidemic and has been featured in Politico, FiveThirtyEight, and other venues. Dr. Slavova's research has been published in prominent academic journals and widely cited. In 2019, she received the Jess Kraus Award for best paper published in Injury Epidemiology. A manuscript for a study led by Dr. Slavova is listed as the Top Cited paper in the journal Drug and Alcohol Dependence among papers published after 2018.

Dr. Slavova served as the chair of the Overdose Subcommittee at the Council of State and Territorial Epidemiologists (CSTE) from 2015 through 2018. In 2018, she was recognized as a national leader in building analytical capacity for drug overdose mortality surveillance, receiving the CSTE Distinguished Leader Award. In 2018, she was also named the Lexington Public Health Hero for "leading the charge both nationally and locally for clear, actionable data on which to base sound public health policy and programs" and for expanding free access in the community to the lifesaving medication naloxone. From 2018 through 2020, Dr. Slavova served on the National Center for Health Statistics (NCHS) Board of Scientific Counselors Patient-Centered Outcomes Research (PCOR) Drug Work Group, providing input on strategies for improved collection and analysis of national data for research on drug use, misuse, and overdose. Dr. Slavova is a co-director of the UK's Data, Informatics, and Biostatistics Core for the HEALing Communities Study (HCS) that includes 67 communities across 4 research sites (Kentucky, Ohio, Massachusetts, and New York), to test the effect of an integrated intervention to reduce opioid overdose deaths. This is the largest research grant ever received by the University of Kentucky. She also leads the HCS Consortium's Data Capture Work Group that developed the HCS study outcome measures.

The University of Kentucky recognized Dr. Slavova's excellence in scholarship and named her a University Research Professor for 2019-2020.

Dr. Slavova enjoys teaching as well as individual mentoring of students with interests in substance use disorder research, pharmacoepidemiology, public health surveillance, and health informatics.

Phillip Westgate

Dr. Philip Westgate is a Professor in the Department of Biostatistics. His methodological areas of interest include cluster, group, or community randomized trials, longitudinal studies, and clustered data in general. Furthermore, he has applied interests in a variety of areas, including pediatrics and the substance use area. He is the lead biostatistician for the University of Kentucky site of the HEALing Communities Study (UM1DA049406), and serves as co-investigator on multiple NIH grants. Furthermore, he is part of the University of Kentucky's Center for Clinical and Translational Science (CCTS) Biostatistics, Epidemiology and Research Design (BERD) Core, and serves on the CCTS data safety monitoring board.

Dr. Westgate's methodological research focuses on longitudinal studies, cluster, group, or community randomized trials, and clustered data in general. His work has focused on the validity of inference and the power of statistical methods that can be used for the analysis of data in these settings. He also works on study design and the appropriate application of statistical methods. His work is motivated by past and current research studies.

Dr. Westgate is a co-investigator on multiple clinical trials and cluster randomized trials, and is therefore a member on interdisciplinary research teams. For instance, he is the lead biostatistician for the University of Kentucky site of the HEALing Communities Study (UM1DA049406), which is a multi-site cluster randomized trial aimed at reducing opioid-related overdose deaths in communities across four different states. The first citation listed below is work he led on statistical modeling that will be utilized for this study. As another example, he has worked on a clinical trial (R01DA043519) involving neonates with Neonatal Abstinence Syndrome (NAS). Working on NAS-related studies with this research team, he has led the development of a shortened tool for the scoring of NAS severity, and he continues to work with the research team to study potential improvements for NAS severity scoring.

Hongbin Zhang

Dr. Zhang's research focuses on method development and biostatistics application. His expertise is in handling complex data for longitudinal studies with research interests in computation statistics, EM algorithms, joint models, multiple imputation, event history analysis, and causal inference. His research has primarily been funded by NIH grants. As PI for an NIH R03 and NIH R21, he is developing new statistical methods for multi-state and random change-point models with applications in neurocysticercosis and HIV surveillance.

He is also keen to apply statistical methods through collaborative research in which he has more than 30 publications and has been a co-investigator in several NIH R01s for studies in orthopedic surgery, radiology, arthritis, HIV care, and others.

Xiaohua Zhang

Dr. Zhang is a Professor of Biostatistics, a fellow of American Statistical Association Fellow, a Senior Member of IEEE, and an Elected Member of International Statistical Institute. He received his PH.D. in statistics from Carnegie Mellon University, EMBA in Management from Guanghua School of Management at Peking University, M.S. in Genetics and B.S. in Biology from Beijing Normal University.

Zhang's research is focused on big data analysis and artificial intelligence. Current research in this area includes conducting studies in continuous monitoring of physiological signals (such as blood glucose, respiratory signals, cardiovascular signals) and high-throughput genomics (such as high-throughput screening, RNA-seq, cytokine profiling and metabonomics) to address medical questions in diabetes, neuro-diseases, cancers, respiratory diseases, cardiovascular diseases, and so on.

His critical research also includes the development of novel statistical methodology and software (including R packages) for analyzing biomedical data. These novel methods along with their applications have a high impact on the research fields of using high throughput screening and continuous glucose monitoring. He is the single author of a book "Optimal High-Throughput Screening" published by Cambridge University Press and has published research articles as the primary author in prestigious journals like Bioinformatics, Nucleic Acids Research, Allergy and so on.

Zhang has rich experience in both academics and industry. In the industry, he had 14 years at Merck, which is a leading global biopharmaceutical company for many of the world's most challenging diseases. His professional roles included Senior Principal Scientist, Director in Biostatistics and Research Decision Sciences and Head of Early Development Statistics – Asian Pacific, Associate Director, and Senior Biometrician. He established and managed a team providing statistical support for a broad range of studies, including basic research, drug discovery, preclinical studies, clinical pharmacology, phase I, phase II, modeling and simulation, experimental medicine, clinical biomarker and regulatory affairs in Merck.

Dr. Zhang is the founder and chair of the Executive Board of Macau Association for Bioinformatics and has organized many scientific conferences. He has been invited to serve as a critical reviewer for papers submitted to Nature, Nature Methods, Bioinformatics, JASA and so on, as an expert evaluator for grant proposals for multiple panels in USA (such as the NIH study section), Europe and Hong Kong, respectively.

Program Information

Program Overview

The Master of Science in Biostatistics (MSBST) program trains students in methodological skills that are foundational in biostatistics. The MSBST meets the needs of candidates who seek careers in healthcare, government health agencies, biomedical research, and pharmaceutical industries - which all require advanced knowledge in analyzing health science data. Students will benefit from experiential learning opportunities and formal training in applying descriptive and inferential statistics specific to biomedical research, clinical and translational studies, and public health research aimed at improving population health.

Traditional biostatistics programs train students to analyze biomedical data, with a heavy focus on data arising from clinical trials. Traditional epidemiology programs focus on the study of observational data and secondary data. Our symbiotic relationship between the departments of Biostatistics and Epidemiology provides the opportunity to train students to work as "team-scientists" to fill an emerging workforce gap in the intersection of these two fields. The MSBST teaches candidates traditional biostatistics methodology, prepares them to work alongside epidemiologists and other subject-matter experts, and provides the unique skills to work with epidemiological data such as healthcare data, case reports, and more. Furthermore, our educational opportunities will train students to work in the emerging field of health data science.

Program Website

https://cph.uky.edu/programs/msbst

Program Objectives

Following Successful completion of the program, it is expected that students will be able to:

- Demonstrate the ability to construct written or oral communication which accurately presents the results and interpretations of a statistical analysis in an easily comprehendible manner to a collaborating health scientist or other vested audience.
- Develop a statistical analysis plan which implements biostatistical methodology to address a biomedical research question while remaining aware of the limitations of the methodology.
- Apply concepts from the intersection between biostatistics and epidemiology as it applies to the analysis of data.
- Develop code for statistical software to wrangle and analyze data sets using appropriate biostatistical methods.

Program Requirements

Students will complete a minimum of 33 credit hours of coursework, including 21 hours of required program, a minimum of 12 hours of electives, and demonstration of public health foundations. The demonstration of the public health foundation is achieved either through completion of a previous public health degree (BPH or MPH) or completion of a Canvas Course covering the foundational

knowledge. Students are required to demonstrate knowledge of the public health foundations prior to graduation.

The core curriculum includes foundational coursework in biostatistics theory, methodology and application:

- CPH 712 Advanced Epidemiology (3 hours)
- BST 635 Databases and SAS programming (3 hours)
- BST 675 Simulation Based Inference for Health Data Science (3 hours)
- BST 681 Linear Regression (3 hours)
- BST 682 Generalized Linear Models (3 hours)
- BST 693 Statistical Practice in Public Health (3 hours)
- BST 699 Advanced Biostatics Practice (3 hours)

Students will be required to create a portfolio which demonstrates knowledge from the core course.

Electives in epidemiology and biostatistics should be selected from the following list:

- BST 535 Introduction to R programming (3 hours)
- BST 631 Design and Analysis of Health Surveys (3 hours)
- BST 636 Analytic Methods for Mining Healthcare Data (3 hours)
- BST 655 Introduction to Statistical Genetics (3 hours)
- BST 661 Survival Analysis (3 hours)
- BST 662 Applied Longitudinal Data Analysis (3 hours)
- BST 663 Analysis of Categorical Data (3 hours)
- BST 664 Design and Analysis of Clinical Trials (3 hours)
- BST 676 Theory for Biostatistics Methods (3 hours)
- BST 701 Bayesian Modeling in Biostatistics (3 hours)
- EPI 717 Introduction to Causal Inference (3 hours)

 Any other electives must be approved by the DGS.

Sample Schedule
Sample Schedule (2 Years):

Year 1 Fall	Year 1 Spring	Year 2 Fall	Year 2 Spring
BST 681	BST 682	CPH 712	Elective
BST 675	BST 693	Elective	BST 699
Elective (BST 565 Suggested)	BST 635	Elective	

Sample Schedule (3 Years):

Year 1 Fall	Year 1 Spring	Year 2 Fall	Year 2 Spring	Year 3 Fall	Year 3 Spring
BST 681	BST 693	BST 675	BST 682	Elective or CPH 712	BST 699
Elective-BST 565	BST 635	Elective or CPH 712	Elective	Elective	

Project/Program Final Exam

Each student will work on a well-motivated, engaging project involving the analysis, interpretation, and application of real-world data analysis. This project, will be completed as part of the course work in BST 699: Advanced Biostatistics Practice. Additionally, each student enrolled in the program will have a committee consisting of faculty member(s) with expertise and resources related to biostatistics. The committee will be organized by the DGS in the semester the student plans to graduate.

Students are required to provide a culminating project and complete an oral project defense before their faculty committee established according to Graduate School policies (as part of the required Advanced Biostatistics Practice course). Committee members examine the technical competency of students at the oral defense, which acts as the program final exam.

Continuous Enrollment

Please note that graduate students in all programs are required to remain continuously enrolled throughout the duration of their programs unless they specifically ask for a leave of absence. Please see the leave of absence policy below.

Leave of Absence

Enrolled graduate students at the University of Kentucky that sit out for one or more semesters will need to complete a new application and pay the application fee in order to be considered for readmission. In many instances this requirement can be avoided by requesting a "leave of absence". In addition to avoiding the application process, this status will allow the student to priority register in preparation for their return to UK.

Procedurally, students should contact their Director of Graduate Studies (DGS) to seek approval for the leave **prior to the beginning of the semester** in question. If approved, the DGS will contact their Graduate School admissions officer who will modify the record accordingly. No more than two consecutive and four total semesters in leave of absence status may be requested. International students considering a leave of absence are strongly encouraged to discuss their plans with the Office of International Affairs, Department of Immigration Services prior to making a formal request.

International students considering a leave of absence are strongly encouraged to discuss their plans with the UK International Center (formerly the Office of International Affairs), Department of Immigration Services prior to making a formal request.

Readmission

To gain readmission, you must reapply to both the Graduate School and the MSBST program to be readmitted and pay the Graduate School application fee. An application for readmission to the MSBST program consists of a letter explaining how you intend to complete your degree in a timely manner and a letter of support from a current member of the department faculty. Applications for readmission will be reviewed by the MSBST program faculty at a regularly scheduled program faculty meeting.

Note: Program faculty meetings do not necessarily occur during the summer. Readmission should not be assumed, especially if some time has passed. Students taking extended time off from graduate study are strongly encouraged to stay connected to department faculty. Graduate School policies regarding time to degree will also have to be negotiated.

Academic Progress

The Graduate School requires that each department conduct an annual review of the academic progress of its students. We do this through a process of program faculty review and by monitoring grades. Students are provided information and support to meet deadlines required to making timely progress toward degree. MSBST students are strongly encouraged and expected to be self-directed learning and take an active role in their program progress.

Annual Review

Each Spring, at the last program faculty meeting of the semester, the DGS will review the progress of each student and provide feedback to the program faculty for those students identified as having some difficulty. The program minimum GPA to be considered in good standing is a 3.0. However, a "C" grade in any course is considered a warning that performance is below expectations. "B" grades typically accompany faculty recommendations for specific improvements but are not necessarily "bad" grades. If the faculty determines that you are not making successful progress to degree, you will make successful progress to degree; you will be contacted by the DGS to develop a plan for improvement.

Incompletes

If for some reason students cannot complete the requirements of a course during the semester period, the student may request an incomplete from the instructor. It should be noted that the decision to grant the INCOMPLETE is at the discretion of the instructor. INCOMPLETEs should only be considered as an option if part of the work of a course remains undone and if there is a reasonable possibility that a passing grade will result from completion of the work. Requests for new completion dates and requirements should be included in the request for the incomplete.

Termination from the Program

Program faculty may terminate a student's enrollment in the EPB PhD degree program based on any of the following

- Scholastic probation (less than 3.0) for more than three enrolled semesters.
- Having failed twice the project/final exam.

Academic Integrity, Cheating, and Plagiarism

Students are expected to adhere to the highest standards of academic honesty. Cheating, plagiarism, and destruction of course materials violate the rules of the University. For more information on the

University's policy on Students Rights and Responsibilities see the following website:
http://www.uky.edu/deanofstudents/student-rights-and-responsibilities

Violations of the university's rules regarding academic honesty can lead to a failing grade in the course and suspension, dismissal, or expulsion from the University. Instances of academic dishonesty will be reported to appropriate University officials as required by University rules and procedures. Not knowing the policies is not an excuse, so make sure you read Parts I to IV of the website.

A link to a paper "Plagiarism: What is it?" may be found at the Ombud web site or can be accessed at

https://www.uky.edu/ombud/plagiarism-what-it

Students who witness a violation to academic integrity, cheating, and/or plagiarism must report any violation to their Academic Advisor or Program Director within a week of the incident. In addition to University process, policy, and imposed procedures for these infractions, other actions may be recommended by the College of Public Health.

Class Attendance

Every student is expected to attend all class sessions, including laboratories, other outside-the-classroom activities as deemed necessary by the course instructor, and to complete all examinations. Each instructor determines his/her individual policy for class attendance, completion of assigned work, absences at announced and unannounced examinations and excused absences. A student has the right to expect this policy to be in writing and given to him or her by the first or second meeting of the class. Failure to comply with these rules may result in lowered grades.

In all cases, the student bears the responsibility for notifying the instructor of any missed work and for making up any missed work. If feasible, the instructor may give the student an opportunity to make up the missed work or examination missed due to an absence during the semester in which the absence occurred.

Class Cancellations

The University never entirely closes, but there may be a rare cancellation of classes due to inclement weather. Announcements of cancellation or delay of classes normally will be made by 6 a.m. through the local media.

The latest information will be on the UK Infoline at (859) 257-5684, UK Cable Channel 16, or UK website, http://www.uky.edu. Those students who are participating in an off-site experience will be expected to follow the cancellation/ closing policies of the agency/clinic/company where they are assigned.

Confidentiality and Disclosure

The Family Education Rights and Privacy Act of 1974 (FERPA, also known as the Buckley Amendment) provides basic privacy rights to students in regard to their academic transcripts. Under FERPA provisions, students have the right to have their academic record kept separate and confidential unless they consent in writing to have it released. However, FERPA also provides that the College of Public Health may disclose (to University personnel) the student's academic record without the student's consent when the person requesting the information has a legitimate educational interest and the information is used under the following disclosure guidelines and for the purpose of:

1. academic advising
2. writing a letter of recommendation requested by the student. (If the student is requesting a letter be sent to someone outside the University of Kentucky, the Release of Information Consent Form must be completed: http://cph.uky.edu/resources/student-resources/release-information-consent-form- academicprofessional-reference)
3. selecting students for honorary organizations
4. informing community-based faculty members serving as preceptors
5. responding to a directive pursuant to law or court order

Confidentiality of Student Records, Address Information, and Student Rosters

Transcripts and grade information will be released only upon written authorization from the student. Directory information (name, address, telephone listing, date and place of birth, major, dates of attendance, degrees, and most recent educational institution attended) will be released without authorization unless the student notifies the Registrar in writing to the contrary. Official University of Kentucky College of Public Health student records are kept by the Office of Student Engagement, Advising and Success in a locked cabinet, with access restricted to authorized personnel.

The College of Public Health does NOT make lists of students, addresses, phone numbers, e-mail addresses, etc. available to anyone other than students, faculty and staff of the school. Students are instructed NOT to distribute the lists of their classmates to individuals outside the College.

At UK, students can use the UK website to access important information, including grades, student schedules and registration information. Students also can update their addresses and other information, https://myuk.uky.edu/irj/portal.

Diversity, Equal Educational and Employment Opportunities

The College of Public Health and University of Kentucky strive to develop an environment where the value of diversity among students, faculty and staff is accepted, encouraged and embraced. Diversity encompasses differences in age, ethnicity, gender, national origin, race, religion, sexual orientation, socioeconomic background and unique individual style. The individual characteristics, talents and contributions of all people are valued and recognized for the unique contribution they make to our College. The following statement, required on all official UK documents, guides all admissions and employment practices, and represents the best expression of the CPH commitment to diversity.

The University of Kentucky is committed to a policy of providing educational opportunities to all qualified students regardless of economic or social status, and will not discriminate on the basis of race, color, religion, sex, marital status, beliefs, age, national origin, sexual orientation, or physical or mental disability.

Drug Free Institution

The Drug-Free Workplace Act of 1988 and the Drug-Free Schools and Communities Act Amendment of 1989 set a standard of behavior, which affects students who are on University of Kentucky property, on University business, or at University-sponsored events. The University policy, as well as the laws from which the policy is derived, define conduct related to the unlawful possession, use, dispensation, distribution or manufacture of alcohol or illicit drugs. Students found in violation are subject to

disciplinary action up to and including suspension or termination. The Drug-Free Institution Policy can be found here.

Healthcare Colleges Code of Professional Student Conduct (HCC Code)

The Healthcare Colleges Code of Student Professional Conduct (HCC Code) provides the standards of professional conduct and procedures to be followed when questions arise about the professional, moral or ethical character of a student enrolled in courses or programs, including clinical programs, in the healthcare colleges, http://www.uky.edu/regs/files/HCCcode.pdf.

Procedure for Complaints

Individual students having a complaint about any aspect of the Program should first take their complaints to the Director of the Program. If the Director cannot resolve the issue, the complaint should then be taken to the Associate Dean for Academic Affairs in the College of Public Health. The Dean of the College of Public Health is the next administrative level for student complaints. Following initial review, a student may choose to approach the Graduate School (for graduate programs) and/or the University Ombud for undergraduate and professional programs.

Smoke-Free Environment

On April 22, 2008, the UK Board of Trustees gave final approval to the revised version of the university policy that outlines the university's smoke-free policy. Tobacco use is not allowed on University property.

Additional Information

For additional information, please see the following links (please note this list is not exhaustive):

The Graduate School: http://gradschool.uky.edu/

- Academic Load
- Degree Completion
- Financial Aid/Funding Opportunities Forms
- Academic Calendar
- Registration Information Tuition & Fees

The Graduate School Bulletin: http://gradschool.uky.edu/graduate-school-bulletin

- Academic Load
- Add/Drop and Withdrawal
- Grades and Grade Point Average
- Leave of Absence/Readmission
- Repeat Option
- Scholastic Probation
- Termination
- Transfer of Credits

The student success page: https://studentsuccess.uky.edu/

Resources for Students Outside of the Classroom

Student Organizations

University of Kentucky Student Public Health Association (UKSPHA)
Per the SPHA Facebook:

The University of Kentucky Student Public Health Association is a student organization at UK associated with the Kentucky Public Health Association. The purposes of the UKSPHA chapter are to provide a mechanism for member interaction with practicing public health professionals, to advance the formation and implementation of sound public health policy, and to increase the awareness of the opportunities and challenges that public health issues offer to health and public health professionals. We also strive to involve our group in consistent community service and outreach in central Kentucky.

Graduate Student Congress
The mission of the Graduate Student Congress (GSC) is to unify and represent graduate students, professional students, and postdoctoral scholars at the University of Kentucky in matters affecting quality of life, and to facilitate interdisciplinary collaboration and professional development through seminars, forums, outreach programming, advocacy, and community enhancement. You can learn more at https://www.uky.edu/gsc/.

Delta Omega-Beta Gamma Chapter
Delta Omega is the honorary society for graduate students in public health. The Society was founded in 1924 at Johns Hopkins University School of Public Health. There are currently 108 chapters throughout the United States and Puerto Rico. Membership in Delta Omega is by invitation to students with exceptionally high GPAs who also have promising leadership potential in Public Health. An induction ceremony is held at UK each spring for students during their graduating year. For information about the Beta Gamma Chapter at the University of Kentucky College of Public Health, contact Dr. Julia Costich, (859) 257-6712, Julia.costich@uky.edu.

University of Kentucky Academy Health Student Chapter
AcademyHealth is the professional home for health services researchers, policy analysts, and practitioners, and a leading, non-partisan resource for the best in health research and policy. The Chapter was formed to acquaint students with the fields of health services research (HSR), public health systems and services research (PHSSR), and health policy, provide learning opportunities through interaction with health services researchers and health policy practitioners and help expand chapter members' career opportunities. For more information visit http://www.academyhealth.org/index.cfm.

Other Student Organizations
For a complete list of student organizations, please see the following link: http://getinvolved.uky.edu/

Resources for Students with Disabilities
The Disability Resource Center (DRC) provides services to the University community so students with disabilities have an equal opportunity to fully participate in all aspects of University life. (https://www.uky.edu/DisabilityResourceCenter/) Services include:

- Consultation Services
- Accommodated Test Proctoring Services

- Alternative Text and Assistive Technology Services
- Deaf/Hard of Hearing
- Service and Comfort Animal Registration
- Temporary Disability Services
- Workforce Recruitment Program
- Door to Door Transportation Services

For a student to qualify for accommodations due to a disability they must provide a letter from the DRC. More information about faculty including how to schedule an exam can be found here: https://www.uky.edu/DisabilityResourceCenter/content/faculty

Academic Resources

There are many academic resources available to help students.

The UK College of Public Health Student Engagement and Academic Success (SEAS) Office

While physically located on the 6th floor in the College of Nursing building, the SEAS office space if dedicated for public health student use. This space is home to your public advisor, alumni coordinator, and the Assistant Dean for Student Affairs. There's plenty of lounge and study space for your use. https://cph.uky.edu/students/student-engagement-academic-success

Computing Services

The Division of Customer Support & Student IT Enablement maintains 8 computer labs that are spread out across the campus where students can find the necessary hardware and software to complete their assignments and projects. https://www.uky.edu/its/customer-support-student-it-enablement/computer-labs

LinkBlue

The term "linkblue" refers to a directory account (user id and password) which is used to access student account inonmation (MyUK), log into online courses (Canvas LMS), and connect to other campus-wide systems, such as the APEX Degree Planner. To activate a new linkblue account, visit this new student linkblue page https://newstudent.uky.edu/; to manage or reactivate your existing linkblue account, visit this linkblue account manager page. https://ukam.uky.edu/

Software Downloads

UK's complementary software downloads include the Microsoft Office Suite, Adobe Creative Cloud, and various statistical software services. You can view and download these services at the Software Downloads webpage using your LinkBlue. https://download.uky.edu/.

Technology Support

Contact ITS Customer Services https://its.uky.edu/ . with questions, to review self-help topics, or to request additional assistance.

University of Kentucky Libraries

The university libraries offer a wide variety of services to help both students and faculty. (http://libraries.uky.edu/) Services include

- o Academic Liaisons

- o Class and meeting room reservations
- o Research help and services
- o Study space reservations
- o Student printing

UK Medical Center Library

The Medical Center Library is located on the Basement and First Floor of the William R. Willard Medical Education Building, just across the street from the public health SEAS office. The first floor of the Medical Center Library has several study tables providing ample seating for quiet study, and computers that have access to a printer. In the basement you'll find a newly renovated space dedicated to gathering and studying. There are several private study rooms as well as large open-air meeting spaces. https://libraries.uky.edu/locations/mcl

Thomas D. Clark Graduate Study @ Willy T

The Thomas D. Clark Graduate Study is a dedicated study space exclusively for graduate students and postdoctoral fellows/scholars. The space is made available through a partnership between UK Libraries and The Graduate School. Visit the Clark Study on the fifth floor of William T. Young Library, in the west wing. The Clark Study is accessible via UK ID card tap. All graduate students' and postdocs' IDs should be programed to grant access. If your ID does not work or you have any trouble accessing the study, please contact Melissa Barlow with UK Libraries for assistance. https://gradschool.uky.edu/thomas-d-clark-graduate-study

The Writing Center

The Writing Center offers free and friendly help to all UK students, faculty, and staff. We assist with writing, speaking, and multimedia assignments across the curriculum. We offer advice on academic, creative, and professional projects. (https://wrd.as.uky.edu/writing-center)

Tutoring

There are many places on campus where students can find a tutor. You can find many of the resources by visiting: https://www.uky.edu/studentacademicsupport/free-tutoring-and-coaching-resources

University Policies and Procedures

University of Kentucky Social Media Policies

You can find the Universities social media polices and guidelines here: https://www.uky.edu/regs/sites/www.uky.edu.regs/files/files/ar/AR10-4.pdf

Acts and Policies

You should be aware of the following acts and policies.

- Family Educational Rights and Privacy Act (FERPA). https://www.uky.edu/registrar/FERPA-privacy
- Request for student and university information. https://www.uky.edu/deanofstudents/student-records
- Americans with Disabilities Act (ADA). https://www.uky.edu/eeo/ada-compliance
- Title IX of the Education Amendments of 1972. https://www.uky.edu/eeo/title-ix