



UNIVERSITY OF  
**South Carolina**

*Department of  
Epidemiology and Biostatistics*

**Biostatistics  
Graduate Student Handbook  
2021-2022**



*Arnold School of Public Health  
University of South Carolina*



Department of Epidemiology and Biostatistics  
Arnold School of Public Health

## Welcome from the Chair

Dear Incoming Students,

Welcome to the Department of Epidemiology and Biostatistics at the University of South Carolina's Arnold School of Public Health! We are so pleased that you have selected us as you embark upon this new and exciting next stage of your professional journey. My greatest hope is that we can provide you not only with an exceptionally rewarding educational experience that helps you to fulfill your career aspirations, but that your time in the department proves to be enriching and rewarding on both a personal and professional level.

The department's long-term success is rooted in a deep, abiding commitment to advance the public's health through top-tier research and by training the next generation of epidemiologists and biostatisticians. We seek to offer rigorous training in a collegial, supportive environment with the intention that the skills you acquire forge you into a graduate poised to be a public health leader. Our goal is to train the next generation of epidemiologists and biostatisticians to tackle not only the public health challenges of the present, but also to have the skills to address the presently unforeseen public health threats that will emerge in the future. With the COVID-19 pandemic, we are amidst just such a public health threat. Hopefully, this pandemic serves to affirm the value of your career choice and inspires and motivates you in your career. We are confident the skills you acquire during your training will empower you to rise up to meet the public health challenges that you will face during your career. Our training program includes learning that takes place in the classroom, faculty mentorship, practicum in teaching and consulting, and rich opportunities to take part in top-tier research. This multi-faceted educational program will hopefully be personally transformative for you. After more than 45 years of dedication to high quality teaching and research, our department has a proud tradition of excellence. You are now part of this tradition.

We are hopeful that the COVID-19 pandemic will have little impact on us in this academic year, but we will be prepared to adapt to the circumstances as needed. We encourage you all to do your part by getting fully vaccinated as soon as possible if you have not already done so and by adhering to whatever safety protocols are put into place.

As you get settled in, please let us know how we are doing. In our quest for excellence, we are constantly striving to improve. Please let us know what we are doing well, but also where you feel improvements are warranted and how we can better assist you to achieve your career goals. Welcome to the Department, and best wishes for a smooth transition and much success in your degree program.

Sincerely,

A handwritten signature in blue ink that reads 'Anthony J. Alberg'.

Anthony Alberg, Ph.D., M.P.H.  
Professor and Chair

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# OVERVIEW

## *The University of South Carolina*

Among America's oldest and most comprehensive public universities, UofSC Columbia is the major research institution of the University of South Carolina system and its largest campus, enrolling nearly 35,000 students, with over 8,000 of these in graduate and professional programs. At the heart of its mission lies the University's responsibility to the state and society to promote the dissemination of knowledge, cultural enrichment, and an enhanced quality of life.

The University serves a diverse population of students with widely varying backgrounds, career goals, and levels of aspiration. UofSC Columbia offers over 320 degrees at the bachelor's, master's, doctoral, and professional program levels, affording students the most comprehensive array of educational programs in the state. Additional opportunities for personal and career development, including an associate degree program at Fort Jackson, are provided to the citizens of South Carolina through outreach and continuing education activities.

Through the combination of traditional classroom instruction and distributed learning, degree programs are offered in the following areas: arts and sciences; education; engineering and computing; hospitality, retail, and sport management; mass communications and information studies; music; **public health**; and social work; and in professional programs such as business, law, medicine, nursing, and pharmacy. The depth and breadth of its graduate programs in the arts and sciences, international business, **public health**, social work, and library and information science distinguishes UofSC Columbia from all other institutions of higher learning in South Carolina.

Recognized by the Carnegie Foundation as a top research and service institution, nationally ranked in start-up businesses, and conferring over 30% of all bachelor's and graduate degrees awarded at public institutions in South Carolina, the University has a profound relevance, reach, and impact on the people of the state. As the flagship institution of the state system, UofSC Columbia leads the way in providing all students with the highest-quality education, including the knowledge, skills, and values necessary for success and responsible citizenship in a complex and changing world through engagement in nationally and internationally ranked research, scholarship, community outreach, and artistic creation.

## *The Arnold School of Public Health*

The Arnold School of Public Health was established in 1975 as the 19th accredited school of public health in the nation and remains the only accredited school of public health in South Carolina. The School has a rapidly growing undergraduate program, diverse and

vibrant graduate programs, and continues to experience record growth in faculty research funding and research impact. We have a broad range of academic programs, world-renowned areas of research expertise, and far-reaching centers and community programs. The Arnold School of Public Health is improving public health by preparing future scholars and the public health work force as well as conducting, translating, and disseminating groundbreaking research. Our [Departments](#) are home to nationally recognized faculty, award-winning students, and impactful research and community engagement activities.

## **Norman J. and Gerry Sue Arnold**

In 2000, Columbia business leader Norman J. Arnold and his wife, Gerry Sue, gifted \$10 million to create an endowment to support the teaching, research, and public education efforts of the School. The Arnold School became the third named school of public health in the U.S., and the first at a public institution to have this honor. The Arnolds' gift, which was inspired by Norman's successful battle against pancreatic cancer, was a transformative event. It has funded research and outreach that have helped South Carolinians become healthier and experience higher quality of life.

The Arnolds' dedication to improving health for all populations is evident through their generous gifts to the Arnold School. The Norman J. Arnold Endowment, established with their initial gift, supports the Arnold Doctoral Fellowship program to recruit and support top doctoral students. In 2015, the Arnolds pledged an additional \$7 million to create the [Gerry Sue and Norman J. Arnold Institute on Aging](#). The Institute supports a broad range of center-level activities in collaboration with entities such as the National Institutes of Health, to address issues such as childhood obesity prevention, nutrition and food safety, stroke recovery, and dementia, that affect our most vulnerable populations—children and the elderly.

## **Mission, Vision and Values**

The Arnold School of Public Health is the primary public health research and education resource for the citizens of our state. With particular focus on physical activity, nutrition, and cancer prevention, we prepare the next generation of professional practitioners and scholars to serve our communities and impact disease prevention through public health education and intervention.

### *Mission*

The Arnold School of Public Health will improve population health and well-being by fostering innovative education and research that promotes health and healthy environments and will use that knowledge to prevent and effectively respond to disease, disability, and environmental degradation in diverse communities.

### *Vision*

The Arnold School of Public Health advances inquiry, discovery, and innovation; develops outstanding graduates; and promotes health through collaboration, dissemination, and

outreach in our local and global communities.

### *Values*

- Community - The Arnold School actively engages and collaborates with community partners in its education, research, and public service.
- Diversity and Inclusion - The vibrant intellectual environment of the Arnold School embraces respect for diversity and inclusion of all persons.
- Impact - Through inquiry, discovery and dissemination, the Arnold School improves community health, health systems and the environment for populations and individuals worldwide.
- Integrity - The Arnold School adheres to the highest standards of honesty, fairness, stewardship, professional responsibility, and scholarly ethics.
- Learning - Students are the foundation of the school. With its outstanding faculty and staff, the Arnold School provides diverse and dynamic educational and experiential opportunities for learners at all levels.
- Social Justice - In pursuit of health equity for all populations, the Arnold School seeks to bridge any divisions that prevent individuals from attaining complete environmental, physical, mental, and social well-being.
- Translation - Through scholarship and outreach, the Arnold School supports the application of scientific knowledge and use of evidence-based practices and policies to improve individual, community, and societal health.

## **Opposing Racism and Injustice**

The Arnold School joins the [UofSC faculty senate in condemning racism and injustice](#) in all its forms and actions. Racism and social injustice are strong negative determinants of good health - both physically and mentally - and are antithetical to everything we stand for in academic public health.

## **Centers and Programs**

Our service and outreach activities impact various populations across South Carolina and beyond. The Arnold School houses and partners with a wide range of centers, institutes and other programs that conduct original research, engage in translation and dissemination, and connect directly with the public through clinical and other interactive services. These groups reflect our strengths as a School of Public Health and enable us to make a targeted and lasting impact on the populations whose lives we strive to improve.

### [Big Data Health Science Center](#)

A University of South Carolina Excellence Initiative, the UofSC Big Data Health Science Center (BDHSC) serves as a campus-wide interdisciplinary enterprise that conducts cutting-edge research and discovery, offers professional development and academic training, and provides service to the community and industry.

### Cancer Prevention and Control Program (CPCP)

CPCP conducts cancer research with the aim of reducing the burden of cancer by eliminating cancer disparities and making effective methods of preventing and controlling cancer available to all. We are committed to integrating service, education and research in engaging the community.

### Carolina Consortium on Health, Inequalities, and Populations (CHIP)

The Carolina Consortium on Health, Inequalities, and Populations (CHIP) brings together a collaborative group of interdisciplinary scholars conducting innovative research aimed at understanding and addressing the social processes that influence population dynamics and health inequalities.

### Center for Effectiveness Research in Orthopaedics (CERortho)

CERortho's mission is to conduct Comparative Effectiveness Research to generate information leading to the provision of value-based, patient-centered care for patients with orthopaedic conditions.

### Center for Environmental Nanoscience & Risk (CENR)

CENR is a SmartState™ Center that investigates the effects and behaviors of manufactured and natural nanoparticles in the environment and the subsequent effects on environmental and human health. We also work on the development of low hazard and low risk nanotechnologies for the benefit of public health.

### Center for the Study of Aphasia Recovery (C-STAR)

The Center for the Study of Aphasia Recovery does research on stroke recovery and works to improve the lives and communication skills of patients after they suffer strokes.

### Core for Applied Research & Evaluation (CARE)

CARE integrates two previous research offices in the Arnold School of Public Health: the Center for Health Services and Policy Research (CHSPR) and the Office of Research's Evaluation, Translation, and Community Engagement. This integration yields over 30 years of core methodological expertise in program evaluation, survey development, qualitative research, primary and secondary data analysis, quality improvement methods and consultation, community engagement, strategic planning and organizational development.

### Children's Physical Activity Research Group (CPARG)

CPARG brings together faculty, staff and students from various disciplines dedicated to expanding the body of knowledge on physical activity and its promotion in children and adolescents. We strive to enhance the health of young people by generating the knowledge needed to design and implement effective public health policies.

### Clinical Exercise Research Center

CERC is equipped for state-of-the-art measurement of metabolic and cardiorespiratory responses and adaptations to exercise in human subjects. A fully automated system for measurement of metabolism is included. This facility is also equipped with the state-of-the-art DEXA machine for body composition and bone mineral analysis. We have full

phlebotomy capability and provide assay analyses. This facility provides an important resource for conducting undergraduate and graduate student research projects.

#### Consortium for Latino Immigration Studies

The Consortium coordinates and promotes multidisciplinary research related to Latinos in South Carolina and the Southeast. We also foster the dissemination of research findings and their application/translation into practice and policy, support teaching related to Latinos, and collaborate with other entities involved with the state's growing Latino population.

#### Disability Research and Dissemination Center (DRDC)

DRDC is a partnership among the University of South Carolina, the State University of New York Upstate Medical University and the American Association of Health and Disability. Our purpose is to conduct research, train professionals, complete specific projects and disseminate knowledge related to birth defects, disabilities, human development and blood disorders.

#### Global Health

The Arnold School has been involved in global health initiatives and growing our international presence through education, research and outreach programs since 1975. Our goal is to respond to global health challenges by promoting collaborative research among students, faculty and stakeholders around the world.

#### Oceans and Human Health Center for Climate Change Interactions (OHHC2I)

The goal of OHHC2I is to enhance our knowledge of the roles climate change may play in affecting *Vibrio cholerae* infections and production of toxins from fresh water cyanobacteria, both of which may adversely affect human health.

#### Office for the Study of Aging (OSA)

OSA promotes healthy aging through program development, evaluation, education/training and research. We seek to improve long-term care service delivery for South Carolina's older adults by providing evidence-based information to policy makers, health care professionals and the public.

#### PASOs

PASOs is a community-based organization that helps the Latino community and service providers work together for strong and healthy families. Our community health programs include prenatal education, outreach on women's and family health topics, connection to needed resources, increasing access to health care, cultural competency and development of community leaders.

#### Prevention Research Center (PRC)

PRC is a part of the Prevention Research Center Program of the Centers for Disease Control and Prevention and sponsors projects that encourage people of all ages to become more physically active. Committed to improving the health of individuals, families and communities, we promote physical activity through community intervention, training, dissemination and applied research.

### Research Center for Child Well-Being

The interdisciplinary University of South Carolina Research Center for Child Well-Being hosts prevention researchers in public health, psychology, education, and social work. Enhanced by support of the College of Arts & Sciences and the Arnold School of Public Health, research by the center's early investigators is supported by an Administrative Core, a Clinical Trials Logistics Core, and a Statistical & Data Management Core.

### Rural and Minority Health Research Center

The Center investigates persistent inequalities in health status within rural populations with an emphasis on inequities stemming from socioeconomic status, race and ethnicity, and access to healthcare services. We strive to make our research findings useful to organizations and individuals working to improve quality of life for rural residents.

### South Carolina Cancer Disparities Community Network-II (SCCDCN-II)

SCCDCN-II is one of 23 Community Network Programs Centers funded by the National Cancer Institute. Focusing on the African American population, our goal is to reduce cancer disparities through community-based participatory cancer education, research and training.

### South Carolina Institute of Medicine and Public Health (IMPH)

IMPH convenes academic, governmental, organizational and community-based stakeholders around issues important to the health and wellbeing of all South Carolinians. We also provide evidence-based information relevant to policy decisions and other actions that impact health and health care.

### Technology Center to Promote Healthy Lifestyles (TecHealth)

TecHealth is a SmartState™ Center comprised of an interdisciplinary team of research scientists and students. We are dedicated to creating and utilizing innovative technology to encourage healthy lifestyle behaviors, which can solve some of the most pressing chronic health problems facing the citizens of South Carolina.

### UofSC Speech and Hearing Research Center

The Center provides a variety of diagnostic and treatment programs for individuals of all ages with communication disorders. We train future speech-language pathologists and researchers while providing our patients with the highest quality evaluation and treatment to improve social, educational and vocational participation.

# THE DEPARTMENT OF EPIDEMIOLOGY AND BIOSTATISTICS

Public Health was defined by C-EA Winslow as the science and art of preventing disease, prolonging life, and promoting physical health and efficiency through organized community efforts with the goal of enabling every person to realize their birthright of health and longevity. The disciplines of epidemiology and biostatistics are quantitative research sciences that are essential to achieving the goals of public health. Epidemiologists study the distribution and determinants of health and disease in populations. Biostatisticians develop and apply statistical theory, methods and techniques to public health research data and the planning, implementation and evaluation of public health programs.

Achieving gains in improving the public's health depends on the ability to identify and solve community health problems. Epidemiology and biostatistics are critical disciplines for the ascertainment and characterization of public health problems and generating public health action. Both epidemiology and biostatistics are key components of the scientific core of public health and are included in the training of every public health professional.

Combining epidemiology and biostatistics in the same department creates the opportunity for tremendous synergies in education and research. At the same time, the unique features of each discipline are acknowledged in the Department's administrative structure which is comprised of two divisions, the Division of Biostatistics and the Division of Epidemiology.

## *Vision, Mission, and Values*

The Department of Epidemiology and Biostatistics is a community of scholars characterized by an atmosphere of collaboration, collegiality, and mutual respect.

### **Mission**

Our mission is to develop, teach, and apply innovative and efficient methods to solve contemporary public health issues.

### **Vision**

Our department will advance science and health through quality instruction and nationally recognized research programs that attract, support, and train tomorrow's public health leaders.

## Values

The Department of Epidemiology and Biostatistics affirms the seven Arnold School of Public Health value statements listed on pages 6-7.

Our additional department-specific value statements are:

- 1) **Innovation** – Using innovative methods, we test new theories, models and technologies to determine more efficient ways of analyzing and sharing data.
- 2) **Communication** –We endeavor to turn data into information that can be communicated to scientific and nonscientific audiences.

## Goals

### Education:

We are committed to training the next generation of public health leaders. Doctoral and master's students in the Department of Epidemiology and Biostatistics will gain state-of-the-art knowledge and develop skills in both epidemiology and biostatistics. These concepts and skills will enable students to effectively and appropriately identify, evaluate, and solve public health problems. Upon successfully completing the program, the student will demonstrate:

- An understanding of the etiologic pathways contributing to disease, disability, and other health outcomes;
- An ability to apply epidemiologic and biostatistical methods to advance understanding of the determinants of disease and other health outcomes and translate this knowledge to benefit the public's health;
- An understanding of the design and conduct of research in public health; and
- Skills in data analysis and interpretation of research results in the context of promoting the public's health through disease prevention and health promotion.

### Research:

The research goals of the Department stress contributions to the field of public health through the development of new knowledge that advances understanding of the causes of disease, and by translating this knowledge to reduce disease and death. Broad objectives are targeted toward:

- Impact on public health;
- Ability to identify and respond to emerging health problems; and
- Ability to effectively engage in partnerships with public health agencies at the local, state (e.g., South Carolina Department of Health and Environmental Control), and federal levels (e.g., Centers for Disease Control and Prevention, National Institutes of Health).

## Service:

The service goals of the Department are to contribute to the University, the public and the health profession through the direct involvement of the faculty, staff, and students in a range of activities. Service goals are geared:

- To the University through participation in governance and contributions to institutional development;
- To the health professions through contributions to the advancement of science through peer-reviewed publications, editorial and peer review activities, participation in professional and scientific forums and organizations, and assistance to health-related program personnel and policymakers in their efforts to keep abreast of new knowledge; and
- To the public through continuing education, demonstration projects, consulting and other advisory services, and support in the diffusion and dissemination of new knowledge and applied technology to advance the public's health.

## *Degree Programs*

The Department offers master's and doctoral degrees in both epidemiology and biostatistics.

The major in **epidemiology** is designed for students pursuing careers in the study of the distribution and determinants of diseases, disabling conditions, risk behaviors, and other health-related outcomes in human populations. The field of epidemiology involves research into factors that influence human health states or events and evaluation of prevention and treatment interventions. Epidemiologists attempt to establish the causes of health problems by describing the genetic, biological, environmental, social and behavioral factors affecting illness and premature death as well as factors that contribute to health and well-being. Descriptive and analytic techniques are used to gather information on disease occurrence, advance understanding of the complex sets of factors that contribute to the etiology of disease and translate findings into effective disease control measures. Epidemiologists also engage in research to evaluate the delivery of health services, and to measure the efficacy of treatments and intervention programs. The evidence generated from epidemiologic research is relevant to developing health promotion/disease prevention programs and formulation of health policy. To accomplish these objectives, the epidemiologist must acquire expertise in study design and exposure assessment. As a discipline committed to the health and well-being of human beings, epidemiology places an emphasis on ensuring adherence to ethical standards of practice regarding persons' participation in research as well as to maintaining high standards of research integrity in implementing research studies. Epidemiologists work in leadership and collaborative roles on interdisciplinary teams, whether these teams are focused on advancing research or public health practice.

The major in **biostatistics** is designed for students pursuing careers in community health

measurement, design and management of health data systems, health-related data science, and the development and application of quantitative methods to health problems. Biostatisticians apply statistical theory, methods, and techniques to the planning, development, and evaluation of health programs and problems. They collect and analyze various types of information such as: demographic and vital statistics; health resources statistics; integration of individual-level, area-level, and spatial-level data; high throughput genomic, proteomic, and other biomarker data; and other biological, environmental, social and behavioral factors relevant to modern health problems. Biostatisticians design experiments and observational studies, use various computer operating systems and software packages to store and analyze information, develop methods to compare population groups, and prepare inferential and probabilistic statements based on biological, social, and environmental data. Biostatisticians have the capacity to apply advanced statistical theory to solve complex data analytic challenges in addressing important questions in public health and biomedical research. The work of biostatisticians ranges from the application and interpretation of standard analytic techniques to the development of novel methodological approaches to unique forms of data.

The **Master of Public Health (M.P.H.)** in epidemiology degree is designed for those who wish to acquire skills necessary to work as an epidemiologist in a public health setting. The M.P.H. with a major in epidemiology provides a foundation in epidemiologic methods with a focus on applying epidemiologic skills in the setting of public health practice.

The **Master of Science (M.S.)** degree is designed for those who wish to acquire skills necessary for public health research. The M.S. with a major in epidemiology focuses on development of research skills for the study of determinants of disease and other health conditions. The M.S. with a major in biostatistics prepares researchers to apply statistical techniques to health problems.

The **Doctor of Philosophy (Ph.D.)** is an advanced graduate degree for those who intend to pursue teaching and research careers. The major objective of the Ph.D. degree in Epidemiology is to prepare an individual to pursue original epidemiologic investigation of diseases and develop novel methodological approaches. The major objective of the Ph.D. degree in Biostatistics is to prepare an individual to develop and apply biostatistical principles and methods to public health problems.

The **Combination Doctor of Philosophy (Ph.D.)** program in Epidemiology and Environmental Health Sciences *is an advanced combination graduate degree program for those who intend to pursue teaching and research careers.* Given the increasingly prominent role of the environment in determining human health, and the unique set of requirements in relation to study design and measurement of both environmental exposures and environment-related health outcomes, this program provides students the opportunity to obtain a combination Ph.D. in Epidemiology and Environmental Health Sciences. To be admitted to this combination degree program students must meet all entrance requirements of each department and be accepted as a Ph.D. student in each. Few students will have master's degrees in both environmental health sciences and epidemiology, so most successful applicants will have substantial

prerequisite work to complete in one or both disciplines. Students currently enrolled in either program may enter the combination degree program and apply for appropriate credit granted by both programs. Any student enrolled in the combination degree program must meet all academic requirements applicable at the time of enrollment to remain in the combination degree program. For more information about this combination degree program and its requirements, please see the Graduate Director in either Epidemiology or Environmental Health Sciences.

# RESOURCES

## *Libraries*

The University Libraries foster learning and discovery by connecting people with significant collections and expert support of research. Ranked 34<sup>th</sup> by the Association of Research Libraries among U.S. Public Libraries, the University Libraries are the only ARL member in South Carolina. The libraries are comprised of the historic South Caroliniana Library; Ernest F. Hollings Special Collections Library; Music Library; Moving Image Research Collections; and Thomas Cooper Library, a seven-level facility with 290,000 square feet of floor space that is open 24/7 to students. Scholars from the around the world seek the libraries' holdings, which include comprehensive collections of F. Scott Fitzgerald, crime fiction writers Elmore Leonard and Dashiell Hammett, natural history, astronomy, news, film, and state political leaders.

The Arnold School of Public Health's liaison to the Thomas Cooper Library is Amy Edwards ([amjedwar@mailbox.sc.edu](mailto:amjedwar@mailbox.sc.edu)).

## *Information Technology*

The Division of Information Technology (DoIT) provides strategic leadership for information technology, instructional services, e-learning and research cyberinfrastructure at the University of South Carolina. For more information visit [www.sc.edu/it](http://www.sc.edu/it) and for technical assistance contact the Service Desk at [servicedesk@sc.edu](mailto:servicedesk@sc.edu) or (803) 777-1800.

The Information Technology Core provides IT support for the Arnold School of Public Health faculty and staff. This team also oversees the Arnold School of Public Health's main computer lab for students, located in Discovery Room 431. Within the computer lab there are 34 workstations and two black and white laser printers. For assistance with Arnold School of Public Health specific IT issues, please submit a ticket with ASPH IT: <https://support.asph.sc.edu>.

### **Discovery Computer Lab hours (fall, spring & summer)**

Monday-Friday: 8:00am - 10:00pm

Saturday: 10:00am - 8:00pm

Sunday: closed

## *Information for International Students*

International Student Services (ISS) is your go-to resource for all things immigration related, particularly when it relates to F-1 and J-1 visas. The advisors at ISS are your resource and guide when it comes to immigration and cultural matters so that you can

achieve your educational and personal goals in the U.S. ISS can be contacted at [iss@sc.edu](mailto:iss@sc.edu) or by visiting their website: [www.iss.sc.edu](http://www.iss.sc.edu).

## *Carolina Card*

The Carolina Card is your permanent UofSC ID card plus a flexible-spending declining balance card. Each time you make a purchase, the amount of the purchase is deducted from your account balance. Carolina Cash can be used for dining and non-dining purchases. For more information, visit their website: [https://sc.edu/about/offices\\_and\\_divisions/carolinacard/](https://sc.edu/about/offices_and_divisions/carolinacard/).

## *Student Services*

Academic achievement is the primary goal for every graduate student, but making it happen while maintaining life balance can be challenging. We encourage you to take advantage of the many services available to you through the Division of Student Affairs ([Div of Student Affairs and Academic Support - Offices](#)). Below are just some of the many offices within the Division of Student Affairs.

### **University Health Services**

In addition to the rigors of your studies, the change of being in a new community can create a stressful environment that impacts your health and well-being. Multiple services are available to students, including Healthy Carolina and Student Health Services, located directly behind the Russell House (1401 Devine St), which provides comprehensive physical and mental health care services on campus. For more information about University Health Services, including Counseling Services, please visit their website: [https://sc.edu/about/offices\\_and\\_divisions/student\\_health\\_services/](https://sc.edu/about/offices_and_divisions/student_health_services/).

### **Career Center**

The Career Center prepares students for lifelong career management by helping them discover careers, develop their employability skills and connect with employers. Visit their website at [sc.edu/careercenter](http://sc.edu/careercenter) or contact them at 803-777-7280.

### **Multicultural Student Affairs**

The Office of Multicultural Student Affairs supports an inclusive campus environment by providing educational and social programs and supporting and advocating for historically underrepresented student populations. Visit their website at [sc.edu/multicultural](http://sc.edu/multicultural) or contact them at 803-777-7716 or [saomsa@mailbox.sc.edu](mailto:saomsa@mailbox.sc.edu).

## **Off-Campus Living and Neighborhood Relations**

The Office of Off-Campus Living helps students transition to and thrive in off-campus residences and understand the rights and responsibilities of residing in Columbia. Students looking for off-campus housing opportunities or information should visit their website at [sc.edu/offcampusliving](http://sc.edu/offcampusliving) or contact them at 803-777-3366 or [saocss@mailbox.sc.edu](mailto:saocss@mailbox.sc.edu).

## **Registrar**

The University Registrar oversees student educational records, the academic calendar, course registration, enrollment verification, transfer credits and issuing diplomas. The Office of the Registrar also manages veterans' services and citizenship and S.C. residency verification. Visit their website at [sc.edu/registrar](http://sc.edu/registrar) or contact them at 803-777-5555.

## **Bursar**

The University Bursar's Office oversees student bill information, as well as other financial information. Visit their website at [sc.edu/bursar](http://sc.edu/bursar) or contact them at 803-777-4233 or [bursar@mailbox.sc.edu](mailto:bursar@mailbox.sc.edu).

## **Student Conduct and Academic Integrity**

The Office of Student Conduct and Academic Integrity upholds the student code of conduct by addressing and adjudicating students' alleged violations through a restorative and educational process. Visit their website at [sc.edu/conductandacademicintegrity](http://sc.edu/conductandacademicintegrity) or contact them at 803-777-4333 or [saosc@mailbox.sc.edu](mailto:saosc@mailbox.sc.edu).

## **Leadership and Service Center**

The Leadership and Service Center equips students to positively impact their communities through involvement in student organizations, leadership development, service, and civic engagement. Visit their website at [sc.edu/leadershipandservicecenter](http://sc.edu/leadershipandservicecenter) or contact them at 803-777-7130. Some of the student organizations that are specific tailored to graduate students include:

### *Graduate Student Association*

The Graduate Student Association (GSA) is dedicated to the advancement and development of the nearly 7,000 graduate and professional students at the University of South Carolina. For more information, contact them [sogsa@mailbox.sc.edu](mailto:sogsa@mailbox.sc.edu).

### *Black Graduate Student Association*

To foster an academic, professional, and social environment for black graduate students and to serve as an aid in advocating the needs and concerns of black graduate students at the University of South Carolina. For more information, contact them at [sobgsa@mailbox.sc.edu](mailto:sobgsa@mailbox.sc.edu).

### *Delta Omega Society*

Delta Omega is the honorary society for graduate and undergraduate students in public health. The Society was founded in 1924 at Johns Hopkins University's School of Public Health. For more information, contact them at [deltaomg@mailbox.sc.edu](mailto:deltaomg@mailbox.sc.edu).

## **Sexual Assault and Violence Intervention and Prevention**

The university strives to prevent interpersonal violence and support anyone who has experienced or been affected by it. To speak with an advocate, call 803-777-8248 or drop in to Sexual Assault and Violence Intervention & Prevention during business hours (1409 Devine Street). Students and faculty and staff members can talk to a trained interpersonal violence advocate. To learn more about education, training, and support, please visit [https://www.sc.edu/about/initiatives/safety/stop\\_sexual\\_assault/index.php](https://www.sc.edu/about/initiatives/safety/stop_sexual_assault/index.php).

## **Student Success Center**

The Student Success Center provides course-specific and general study skills assistance, as well as services for transfer and veteran students. Visit their website at [sc.edu/success](http://sc.edu/success) or contact them at 803-777-1000 or [sassc@mailbox.sc.edu](mailto:sassc@mailbox.sc.edu).

## **Substance Abuse Prevention and Education**

The Office of Substance Abuse Prevention and Education helps students identify risky behaviors, hone decision-making skills and make safer choices regarding alcohol and drugs. Visit their website at [sc.edu/sape](http://sc.edu/sape) or contact them at 803-777-3933 or [sape@sc.edu](mailto:sape@sc.edu).

## **Sustainability**

The Office of Sustainability promotes collaborations among students, faculty, staff, and community members for exploring and implementing the changes required to create a sustainable campus and society. Visit their website at [sc.edu/sustainability](http://sc.edu/sustainability) or contact them at [sustainability@sc.edu](mailto:sustainability@sc.edu).

## **Student Disability Resource Center**

The Student Disability Resource Center (SDRC) serves students with disabilities and temporary injuries in managing the varying demands of the University experience. In addition to serving students, the staff assists the University community in making programs, services, and activities accessible for everyone. To apply for accommodations, you should start the application process as soon as you are admitted to the University. Please visit the [SDRC Homepage](#) for more information.

## ***Student Grievances, Appeals and Petitions***

The policies and regulations of the University of South Carolina serve as purposeful guidelines and standards for students as they pursue degree objectives. Occasionally, individual students may feel they have grounds to seek exception from the uniform application of such regulations and policies. Undergraduate students may file written grievances, appeals or petitions to the Office of Public Health Education/Office of Undergraduate Student Services. Graduate students may file written grievances, appeals or petitions to Office of Faculty Affairs seeking to reverse or modify decisions made at a lower level of authority. Resolution of any written grievance must follow the procedures outlined in policies maintained by the UofSC Division of Student Affairs and Academic Support ([STAF 6.27 Student Grievance Policy – Non-Academic \[pdf\]](#)) and [STAF 6.30 Academic Grievance Policy \[pdf\]](#)). As described in STAF 6.27, student ombudsmen are also available to help students resolve grievances and maintain policy compliance. For more information, please go to [SPH Graduate Student Grievance Procedure](#).

# ACADEMIC INTEGRITY

Only in an environment where honesty and integrity are core values can we truly advance the science and practice of public health. The Department of Epidemiology and Biostatistics places a premium on academic integrity. Violations of academic integrity are thus taken very seriously. Many details about academic integrity are described below, but a fundamental precept to guide your approach is to take pride in doing work to the best of your natural abilities and doing so honestly and fairly.

The following excerpts are taken from STAF 6.25 Academic Responsibility – The Honor Code, last revised August 1, 2017.

“The Honor Code is a set of principles established by the university to promote honesty and integrity in all aspects of a student’s academic career. It is the responsibility of every student at the University of South Carolina to adhere steadfastly to truthfulness and to avoid dishonesty in connection with any academic program. A student who violates, or assists another in violating the Honor Code, will be subject to university sanctions. The Honor Code delineates the values set forth in the tenets of the Carolinian Creed ([www.sa.sc.edu/creed](http://www.sa.sc.edu/creed)). When a student is uncertain as to whether conduct would violate this Honor Code, it is the responsibility of the student to seek clarification from the appropriate faculty member or instructor of record.”

**The following is a list of Honor Code Violations with associated prohibited behaviors.**

## *Plagiarism:*

Use of work or ideas without proper acknowledgment of source. Prohibited behaviors include:

- Partial or incomplete citation of work or ideas.
- Improperly paraphrasing by acknowledging the source but failing to present the material in one’s own words.
- Paraphrasing without acknowledgment of the source.
- Multiple submissions of the same or substantially the same academic work for academic credit.
- Copying, partially or entirely, any material without acknowledgement of the source.

## *Cheating:*

Improper collaboration or unauthorized assistance in connection with any academic work. Prohibited behaviors include:

- Requesting unauthorized assistance
- Providing aid or assistance to or receiving aid or assistance from another individual

or source without permission (including improper collaboration), in conjunction with academic work.

- Copying another individual's or group's academic work.
- Allowing others to complete an assignment or portion of an assignment for you (e.g., having an online tutor complete your work, buying a paper, having another person complete a test for you).
- Using any material or aid that are not authorized by the person giving the test, project or other assignment (e.g., websites, cell phone, calculator, notes, previous test materials) for an unfair academic advantage.
- Using, possessing, or distributing the contents of any examination (e.g., unauthorized access to test/quiz information, unauthorized duplication of test/quiz materials) without authorization.
- Engaging in an act of bribery or coercion. Bribery refers to soliciting, receiving, or giving an item of value in exchange for academic work.
- Taking, misplacing, or damaging property if the student knows or reasonably should know that an unfair academic advantage would be gain.

*Falsification:*

Misrepresenting or misleading others with respect to academic work or misrepresenting facts for an academic advantage. Prohibited behaviors include:

- Signing in for another student who is not in attendance, requesting this action of others, or signing into class and not attending the entire class period.
- Violation of Classroom rule and/or failing to comply with instructions given by the person administering a test, project, or other assignment, or given in conjunction with the completion of course requirements.
- Interfering with an instructor's ability to evaluate accurately a student's competency or performance on any academic work.
- Fabrication of documents submitted in connection with academic work.

*Complicity:*

Assisting or attempting to assist another in any violation of the Honor Code. Prohibited behaviors include:

- Sharing academic work with another student (either in person or electronically) without the permission of the instructor.
- Communicating (either in person or electronically) with other student(s) or other individual(s) during an examination without the permission of the instructor.

All work submitted by a student is expected to be that student's own work **unless the instructor specifically states that students may work together on the assignment/homework/project, etc.** If permitted by the instructor, students may use their notes and books and other references for take-home examinations but cannot consult with each other.

If a student is writing a paper that uses external sources of information, **all external sources of information must be cited**. If the sources are used verbatim, the words must be in quotation marks and the source must be cited. If the sources have been paraphrased, the sources still must be cited. A paper submitted for one class may not be submitted for a subsequent class, unless a student has the express permission of the professor of the subsequent class. This might happen if the current work builds upon previous work.

These rules are not meant to cover all circumstances. If any questions arise, please discuss them with your instructor, advisor, or Graduate Director. Plagiarism and other violations of the Honor Code are serious offenses and will be taken up with the Office of Academic Integrity. For more information, visit the Office of Student Conduct and Academic Integrity [website](#).

## *The Carolinian Creed*

The Carolinian Creed was authored by a group of students, faculty, and staff and approved by the Faculty Senate, Student Senate, and the UofSC Board of Trustees. The principles delineated in the Carolinian Creed articulate a vision of civility and positive interpersonal skills that are critical to career success in epidemiology and biostatistics.

The community of scholars at the University of South Carolina is dedicated to personal and academic excellence. Choosing to join the community obligates each member to a code of civilized behavior.

### **As a Carolinian ...**

- I will practice personal and academic integrity;
- I will respect the dignity of all persons;
- I will respect the rights and property of others;
- I will discourage bigotry, while striving to learn from differences in people, ideas and opinions;
- I will demonstrate concern for others, their feelings, and their need for the conditions which support their work and development.

# COMMUNICATION

## *Communication*

E-mail is the official means of communication at the Arnold School of Public Health. You are also assigned a mailbox in Discovery Room 432. These will be used to communicate items such as notes, invitations, deadlines for various events, mail from your professor, etc. It is the student's responsibility to check your email and mailbox regularly for important information.

## *Department Listserv*

Epidemiology and Biostatistics students are required to subscribe to the Department Listserv in order to keep up with what is happening in Epidemiology and Biostatistics and in the Arnold School. Seminars, class changes, graduate assistantship and job opportunities, registration requirement updates, and other important information will be sent to you through the Listserv. Instructions for subscribing are below.

### **To Subscribe to the EPIDBIOS Listserv:**

- Send an e-mail to: [listserv@listserv.sc.edu](mailto:listserv@listserv.sc.edu)
- No subject
- In text area type the following: "SUBSCRIBE EPIDBIOS Your Name"
- Send the message without a signature

Note - If the subscription is successfully sent, you will receive a message from the Listserv system informing you of your acceptance. If you are not successful, visit the Arnold SPH Health Sciences Computer Lab (Discovery 431) or call University Technology Services at 803-777-1800 for assistance.

### **To Unsubscribe**

To cancel your subscription to the listserv, you can send an email message to the server hosting the specific list, [listserv@listserv.sc.edu](mailto:listserv@listserv.sc.edu), and in the body of the message include the command: SIGNOFF EPIDBIOS. You must send this command from the account you subscribed from (otherwise it will not recognize you as a member and will not delete your subscription).

## *Departmental Seminars*

In addition to formal training experiences, the Department of Epidemiology and Biostatistics offers a monthly departmental seminar series that students should plan to attend to expand their breadth of knowledge of leading-edge research in an informal

setting.

In addition to the monthly departmental seminar, students are encouraged to seek out other seminars offered with the Arnold School of Public Health as well as other departmental learning forums such as thesis, dissertation, and practicum presentations.

## ***Contact Information for Graduate Directors and Support Staff***

The following are individuals with whom you will become familiar while you are a student here. Their contact information is given below.

### **Graduate Directors**

Linda Hazlett, Ph.D.  
Graduate Director for Epidemiology  
[ljhazlet@mailbox.sc.edu](mailto:ljhazlet@mailbox.sc.edu)  
803-777-6653  
803-361-6840 (cell)

Robert Moran, Ph.D.  
Graduate Director for Biostatistics  
[rrmoran@mailbox.sc.edu](mailto:rrmoran@mailbox.sc.edu)  
803-777-7876  
803-665-6741 (cell)

Myriam Torres, PhD  
Program Director, Epidemiology MPH  
[myriam.torres@sc.edu](mailto:myriam.torres@sc.edu)  
803-777-6852

Graduate and Program Directors should be contacted directly if you have questions pertaining to:

- Program of Study and curriculum
- Advisement
- Progress towards degree completion
- Graduation requirements

Any requests for forms can be made with the Program Coordinator.

### **Administrative Staff**

Emily Writer, M.Ed.  
Program Coordinator  
[tedescel@mailbox.sc.edu](mailto:tedescel@mailbox.sc.edu)  
803-777-7666  
803-777-7353

Stephanie Kline  
Business Manager  
[sdriver@mailbox.sc.edu](mailto:sdriver@mailbox.sc.edu)  
803-777-5876

Chase Ferch  
Grants Coordinator  
[ferchc@mailbox.sc.edu](mailto:ferchc@mailbox.sc.edu)  
803-777-8960

The Program Coordinator should be contacted directly for any questions about the degree programs, University policies and procedures, or other topics. If unsure about who to contact regarding a specific question related to the Department or University, always start with the Program Coordinator.

The Business Manager and Grants Coordinator should be contacted directly only after being instructed to by a Graduate Director or the Program Coordinator.

The Graduate School should be contacted only after being instructed to by a Graduate Director or Program Coordinator.

# Faculty and Research Areas of Interest

## *Full-time Faculty*

**Swann A. Adams**, Ph.D., University of South Carolina, 2003

Professor, College of Nursing and Epidemiology; Cancer Prevention and Control Program  
Research interests: cancer epidemiology, physical activity, breast cancer, and ethnic disparities in cancer

[swann.adams@sc.edu](mailto:swann.adams@sc.edu)

**Cheryl L. Addy**, Ph.D., Emory University, 1988

Professor and Vice Provost and Dean for Graduate Studies

Research interests: categorical data analysis, survey data analysis, epidemiologic methods, physical activity and public health, psychiatric epidemiology, maternal and child health

**Anthony J. Alberg**, Ph.D., M.P.H. Johns Hopkins University, 1994

Professor and Chair, Department of Epidemiology and Biostatistics

Research interests: cancer epidemiology, including lung cancer, skin cancer, ovarian cancer; health effects of tobacco products; tobacco control; epidemiology of tobacco use

[alberg@mailbox.sc.edu](mailto:alberg@mailbox.sc.edu)

**Nansi Boghossian**, Ph.D., MPH, University of Iowa, 2011

Associate Professor, Epidemiology

Research interests: Perinatal epidemiology, pregnancy complications, preterm birth, birth defects, global health

[nboghoss@mailbox.sc.edu](mailto:nboghoss@mailbox.sc.edu)

**Monique J. Brown**, Ph.D., MPH, Virginia Commonwealth University – SOM, 2014

Assistant Professor, Epidemiology

Research Interests: Social and behavioral epidemiology, psychosocial and behavioral factors associated with living with HIV/AIDS, aging and HIV/AIDS, life course, vulnerable populations, health disparities, sexual health, mental health, meditation analysis, adverse childhood experiences

[Brownm68@mailbox.sc.edu](mailto:Brownm68@mailbox.sc.edu)

**Bo Cai**, Ph.D., University of Auckland, NZ, 2003

Professor, Biostatistics

Research interests: Bayesian random effects selection, nonparametric modeling, multivariate analysis, mixture models, and the relevant application area including human reproductive study, child health and toxicology, Computational statistics, Markov chain Monte Carlo methods, sampling methods based on Markov chain

[bcai@mailbox.sc.edu](mailto:bcai@mailbox.sc.edu)

**Alyssa Clay-Gilmour**, Ph.D., State University of New York at Buffalo, 2016

Assistant Professor, Epidemiology

Research interests: genetic epidemiology, statistical genomics, relationships between exposures and genomic variants that modify susceptibility to cancer etiology and clinical outcomes, hematologic malignancies and blood and marrow transplantation

[claygila@mailbox.sc.edu](mailto:claygila@mailbox.sc.edu)

**Jan Eberth**, Ph.D., University of Texas Health Science Center, 2011

Associate Professor, Epidemiology

Research interests: Cancer screening and prevention, social epidemiology and health disparities, medical geography and GIS applications, access, utilization and quality of cancer screening and treatment services

[jmeberth@mailbox.sc.edu](mailto:jmeberth@mailbox.sc.edu)

**James W. Hardin**, Ph.D., Texas A&M University, 1992

Professor, Biostatistics; Associate Dean for Faculty Affairs and Curriculum; Interim Chair, Health Services Policy & Management

Research interests: applied research in behavior outcomes (risky sexual behavior, smoking cessation, etc.), applied research in health outcomes (orthopedics, cancer, and nutrition), network analysis, correlated data analysis, structural equation modeling

[jhardin@mailbox.sc.edu](mailto:jhardin@mailbox.sc.edu)

**Linda J. Hazlett**, Ph.D., MPH, MT (ASCP), University of South Carolina, 2004

Clinical Associate Professor and Graduate Director for Epidemiology

Research interests: cancer epidemiology, clinical research, pedagogy

[ljhazlet@mailbox.sc.edu](mailto:ljhazlet@mailbox.sc.edu)

**James R. Hébert**, Sc.D., Harvard University, 1984

Health Sciences Distinguished Professor, Epidemiology; Director, Cancer Prevention and Control Program

Research interests: dietary assessment, diet and physical activity interventions, measurement bias, nutritional epidemiology, cancer epidemiology, complementary and alternative medicine

[jhebert@sc.edu](mailto:jhebert@sc.edu)

**James R. Hussey**, Ph.D., Virginia Polytechnic Institute and State University, 1983

Clinical Associate Professor, Biostatistics

Research interests: experimental design, mixed models, longitudinal data analysis

[jhussey@mailbox.sc.edu](mailto:jhussey@mailbox.sc.edu)

**Mufaro Kanyangarara**, Ph.D., Johns Hopkins University, 2015

Assistant Professor, Epidemiology

Research interests: infectious diseases including malaria and HIV, maternal and child health, global health

[mufaro@mailbox.sc.edu](mailto:mufaro@mailbox.sc.edu)

**Angela D. Liese**, Ph.D., University of North Carolina, 1996

Professor, Epidemiology

Research interests: dietary assessment, epidemiology of obesity, diabetes and cardiovascular disease, emphasis on children and youth

[liese@mailbox.sc.edu](mailto:liese@mailbox.sc.edu)

**Jihong Liu**, Sc.D., Harvard University, 2003

Professor, Epidemiology

Research interests: Maternal and child health epidemiology, reproductive epidemiology, physical activity and nutrition in pregnancy and early life, health disparity, survey data collection and analysis, international health

[jliu@mailbox.sc.edu](mailto:jliu@mailbox.sc.edu)

**Matthew C. Lohman**, Ph.D., MHS, Virginia Commonwealth University, 2014

Assistant Professor, Epidemiology

Research interests: Epidemiology of aging, psychiatric epidemiology, survey data analysis, cognitive health, determinants and distribution of falls, injuries, and hospitalization

[lohmanm@mailbox.sc.edu](mailto:lohmanm@mailbox.sc.edu)

**Alex McLain**, Ph.D., University of South Carolina, 2008

Associate Professor, Biostatistics

Research interests: survival analysis, joint modeling of longitudinal and survival data, multiple testing, fecundity modeling, prediction of survival outcomes, and mixed effects models

[mclaina@mailbox.sc.edu](mailto:mclaina@mailbox.sc.edu)

**Anwar Merchant**, Sc.D., Harvard University, 2001

Professor and Division Director for Epidemiology

Research interests: improving health and preventing disease through lifestyle changes; possible effects of lifestyle on disease, and societal and personal factors influencing lifestyle; relation between infection and chronic disease

[merchant@mailbox.sc.edu](mailto:merchant@mailbox.sc.edu)

**Maggi Miller**, Ph.D., M.S., University of South Carolina, 2012

Research Assistant Professor and South Carolina Alzheimer's Disease Registry Manager, Office for the Study of Aging

Research interests: Alzheimer's disease and related disorders, caregivers of individuals with Alzheimer's disease, social capital, survey development

[chandlmj@mailbox.sc.edu](mailto:chandlmj@mailbox.sc.edu)

**Robert Moran**, Ph.D., University of South Carolina, 2004

Clinical Associate Professor and Graduate Director for Biostatistics

Research interests: nutritional instruments; data management

[rmoran@mailbox.sc.edu](mailto:rmoran@mailbox.sc.edu)

**Melissa Nolan**, Ph.D., MPH, Baylor College of Medicine, 2015  
Assistant Professor, Epidemiology  
Research interests: infectious diseases and health disparities  
[msnolan@mailbox.sc.edu](mailto:msnolan@mailbox.sc.edu)

**Andrew Ortaglia**, Ph.D., University of South Carolina, 2012  
Clinical Assistant Professor, Biostatistics  
Research interests: semi-parametric models, survival analysis, health aspects of physical activity  
[ortaglia@mailbox.sc.edu](mailto:ortaglia@mailbox.sc.edu)

**Stella Self**, Ph.D., Clemson University, 2019  
Assistant Professor, Biostatistics  
Research interests: Bayesian spatio-temporal modeling, models for forecasting vector-borne disease, multidimensional nonparametric functional estimation  
[scwatson@mailbox.sc.edu](mailto:scwatson@mailbox.sc.edu)

**Susan E. Steck**, Ph.D., University of North Carolina at Chapel Hill, 1999  
Professor, Epidemiology  
Research interests: nutrition and cancer prevention and survivorship, personalized nutrition, health disparities, dietary patterns, biomarkers  
[ssteck@sc.edu](mailto:ssteck@sc.edu)

**Myriam E. Torres**, Ph.D., MSPH, University of South Carolina, 2001  
Clinical Associate Professor and MPH Program Director of Epidemiology; Director, Consortium for Latino Immigration Studies  
Research interests: Hispanic/Latino health issues, perinatal issues among Latinas, HIV/AIDS among Latino populations, bi-national research  
[torresme@mailbox.sc.edu](mailto:torresme@mailbox.sc.edu)

**Yuan Wang**, Ph.D., University of Wisconsin-Madison, 2018  
Assistant Professor, Biostatistics  
Research interests: joint modeling of structural and functional neuroimaging data, topological signal processing of neuroimaging time series, topological brain network analysis  
[Wang578@mailbox.sc.edu](mailto:Wang578@mailbox.sc.edu)

**Jingkai Wei**, PhD, MSPH, MBBS, University of North Carolina Chapel Hill, 2019  
Assistant Professor, Epidemiology  
Research interests: advanced epidemiologic research methods, impact of cardiovascular disease risk factors on cognitive decline and dementia, cardiovascular disease epidemiology

**Michael D. Wirth**, Ph.D., MSPH, University of South Carolina, 2012

Assistant Professor, College of Nursing and Epidemiology; Research Investigator, Connecting Health Innovations (CHI) LLC

Research interests: circadian rhythm disruption (e.g., shift work, clock gene polymorphisms, sleep disruption, hormone secretion), cancer epidemiology, the Dietary Inflammatory Index, occupational epidemiology, cancer screening, health disparities  
[wirthm@mailbox.sc.edu](mailto:wirthm@mailbox.sc.edu)

**Feifei Xiao**, Ph.D., University of Texas Health Science Center at Houston & MD Anderson Cancer Center, 2013

Assistant Professor, Biostatistics

Research interests: Gene-gene or gene-environment interaction, copy number variation (CNV) detection and association study, epigenetics modeling, cancer, pediatrics & psychiatry, big data analyses, cancer genetic epidemiology  
[xiaof@mailbox.sc.edu](mailto:xiaof@mailbox.sc.edu)

**Jijia Zhang**, Ph.D., Memorial University of Newfoundland, 2007

Professor, Biostatistics

Research interests: accelerated failure time model, frailty model, mixture cure model, statistical computation, semiparametric estimation method  
[jzhang@mailbox.sc.edu](mailto:jzhang@mailbox.sc.edu)

## *Emeritus Faculty*

**J. Wanzer Drane**, P.E., Ph.D., Emory University, 1967

Distinguished Professor Emeritus

Research interests: space-time statistics, biometric modeling of mammalian biology, nonlinear regression, statistics of geographical information systems, mail-back questionnaires, community trials, and improving biostatistics in developing countries

**Robert E. McKeown**, Ph.D., University of South Carolina, 1991; Ph.D., Duke University, 1976

Distinguished Professor Emeritus; Adjunct Faculty; Past Chair, Department of Epidemiology and Biostatistics; Past President, American College of Epidemiology; Past Chair, APHA Epidemiology Section.

Research interests: psychiatric epidemiology, child and adolescent health, public health statistics, public health ethics; social capital and faith communities

**Harris Pastides**, Ph.D., Yale University, 1980

Professor Emeritus and Interim President, University of South Carolina

Research interests: health disparities research, occupational and environmental epidemiology, international health, and applied research in developing country environmental health issues

## *Adjunct Faculty*

### **Daheia J. Barr-Anderson, Ph.D.**

Adjunct Assistant Professor; Assistant Professor, College of Education and Human Development, School of Kinesiology, University of Minnesota.

Research interests: community and home-based interventions, physical activity epidemiology, obesity and physical activity among African Americans, particularly adolescent girls, social and environmental factors

### **Nathaniel Bell, Ph.D.**

Adjunct Assistant Professor; Assistant Professor, College of Nursing, University of South Carolina.

Research interests: GIS; health geography and injury epidemiology; research related to injury recovery outcomes such as satisfaction with access/accessibility of health care (HC) services, spatial access to HC services, trauma care quality improvement studies, as well as HC access among Medicaid recipients; and a fundamental interest in addressing the spatial, socioeconomic, and behavioral determinants of health.

### **Eric Brenner, M.D.**

Adjunct Associate Professor; Consulting Medical Epidemiologist (WHO, UNICEF, ICRC, PAHO, USAID, IUATLD, and other agencies and organizations), Chargé de Cours, Institut de Médecine Sociale et Préventive (IMSP), University of Geneva School of Medicine, Geneva, Switzerland, and Medical Epidemiologist (part-time), Division of Disease Control and Epidemiology, South Carolina Department of Health and Environmental Control.

Research interests: communicable disease control programs, tuberculosis and vaccine preventable diseases.

### **Jim Burch, Ph.D.**

Adjunct Professor; Professor of Epidemiology, Virginia Commonwealth University.

Research interests: Molecular epidemiology, cancer epidemiology, environmental and occupational health

### **Virginie Daguise, Ph.D.**

Adjunct Assistant Professor; Epidemiologist at the South Carolina Cancer Association.

Research interests: cancer epidemiology.

### **Nancy Fleischer, Ph.D.**

Adjunct Assistant Professor; Assistant Professor of Epidemiology, School of Public Health, University of Michigan

Research interests: social and environmental determinants of health, health disparities, global non-communicable diseases and epidemiologic methods.

### **Marco Geraci, Ph.D.**

Adjunct Associate Professor; Professor of Statistics, Sapienza University of Rome

Research interests: Statistical methods and applications for health sciences, quantile

inference, random-effects models, multivariate statistics, missing data, statistical computing, R programming, spatial statistics, accelerometer data, physical activity, pediatrics, epidemiology

**Khosrow Heidari**, MA, MA, MA

Adjunct Instructor, Senior Epidemiology, Bureau of Drug Control, South Carolina Department of Health and Environmental Control

**William J. M. Hrushesky**, M.D.

Adjunct Professor, Chief Scientific Officer and Senior Executive Medical Director, Oncology Analytics Corporation

Research interests: chronobiology, oncology.

**Godwin Mbamalu**, Ph.D. FAIC

Adjunct Professor, Distinguished Professor of Chemistry at Benedict College.

Research interests: environmental and analytical chemistry and health disparities.

**Suzanne McDermott**, Ph.D.

Adjunct Professor; Professor, CUNY Graduate School of Public Health

Research interests: Epidemiology of neurodevelopmental disability in newborns, perinatal epidemiology, disability epidemiology, analysis of large data sets and design of randomized intervention studies

**Nitin Shivappa**, Ph.D.

Adjunct Assistant Professor

Research interests: dietary inflammatory index, cardiovascular diseases and menthol cigarette smoking

# **Biostatistics M.S. Degree Program**

## **Goals and Learning Outcomes of the Master of Science in Biostatistics**

The purpose of the Master of Science (MS) degree in biostatistics is to prepare students, through quality lecture and practical experiences and other research opportunities, for involvement in biostatistical research, including application of existing statistical theory to health problems, formulation of designed experiments, and adaptation of existing statistical theory for emerging health related problems. Specifically, a student who successfully completes this degree will satisfy the following goals.

### **Goal 1.**

M.S. program graduates will demonstrate a mastery of biostatistical techniques, know which of these is most appropriate in a given situation, and know how to perform and interpret the analyses of these techniques.

- Learning outcome 1. Students will demonstrate the ability to evaluate a given health related problem and to identify the most appropriate statistical technique for analysis.
- Learning outcome 2. Students will demonstrate the ability to interpret the results of a statistical analysis and to communicate such interpretations in an easily comprehensible manner.
- Learning outcome 3. Students will display a mastery of a variety of traditional and newly developed statistical techniques.

### **Goal 2.**

M.S. program graduates will demonstrate the ability to use a variety of statistical software packages to obtain, manage, and analyze public health data.

- Learning outcome 1. Students will demonstrate the ability to structure available data in an easily usable form using a variety of data management software tools.
- Learning outcome 2. Students will demonstrate the ability to use a variety of statistical software packages, to create and maintain databases, and to analyze data.

### **Goal 3.**

M.S. program graduates will effectively communicate with both biostatisticians and non-biostatisticians to explain methodology and interpret results of analyses.

- Learning outcome 1. Students will demonstrate the ability to work independently on a research problem outside of the classroom setting and present the results to an audience.
- Learning outcome 2. Students will demonstrate the ability to modify and extend existing statistical techniques to answer questions posed by health-related situations and to synthesize such research results into acceptable research papers.

## Important Dates for M.S. in Biostatistics

<b>Prior to Arriving</b>	
	Details
	Subscribe to the Listserv and familiarize yourself with MySPH
	Contact Graduate Director to be set up an advisement appointment.
<b>Fall 2021 semester</b>	
Date	Details
August 9-13	Teaching Assistantship Training and International Teaching Assistant training
August 17-18	New Student Orientation
August 19	First Day of Classes
August 25	Last Day to Change/drop a course without a grade of W
September 6	Labor Day (no classes)
October 7-8	Fall Break (no classes)
October 11	Contact your advisor about registering for spring 2022 classes
November 24-28	Thanksgiving Break (no classes)
December 3	Last Day of Classes
December 6-13	Final Exams
<b>Spring 2022</b>	
To Do	Details
January 10	First Day of classes
January 17	Martin Luther King Day of Service (no classes)
January 18	Last Day to Change/drop a course without a grade of W
March 6-13	Spring Break (no classes)
March 26	Last day to drop without a WF
April 1	Contact your advisor about registering for Fall 2022 classes
April 13	Deadline to register for Progression Exam
April 25	Last Day of Classes
April 27-May 4	Final Exams
May 13	Deadline to submit Master's program of Study (MPOS) to Graduate Director for approval
May 13	Progression Exam, if not exempt
August 12	Progression Exam - Make up

# Advisement and Progression Information

## *Academic Advisor*

After admission to the Department of Epidemiology and Biostatistics, each student will be assigned a departmental faculty member to serve as an academic advisor. Generally, this advisor will work with the student throughout the course of the program. Students are advised as to appropriate courses, sequencing of courses, independent study topics, thesis topic, and any additional work appropriate to preparing the student to meet career objectives. The student may ask the Graduate Director for a change of academic advisor for a variety of different reasons; students are encouraged to speak with the Graduate Director well in advance if contemplating a change in advisor.

## **Communication**

Clear and regular communication is critical to establishing and maintaining a meaningful working relationship between you and your Advisor. Expectations should be discussed at the first meeting between the student and Advisor to include the following: preferred methods of communication (e.g., email, telephone, walk-in, etc...); frequency of meetings; and who is responsible for scheduling meetings.

## *Advisement*

Students meet with their academic advisors before each semester to fill out an advisement form (AS-122). In the academic advisor's absence, the form can be signed by the Graduate Director. This form must be filled out and either turned in (PHRC 108) or emailed ([sphstsrv@mailbox.sc.edu](mailto:sphstsrv@mailbox.sc.edu)) to the Office of Graduate Student Services (GSS) before a student can register for classes. GSS will check for any holds on a student's registration. Once all holds have been cleared, GSS will email the approved advisement form to the student at which time they can register online for classes. Be sure to include your email address on your advisement form.

## *Academic Standard for Progression*

**NOTE: The following departmental policy is more stringent than the general policy for the Graduate School.**

All graduate students are subject to the academic policies, regulations, and academic standards of both The Graduate School and the department, school and/or college in which enrolled.

A student with a grade lower than "B" grade on a single core course must retake the class prior to graduation, regardless of performance on the Progression or Comprehensive Exam. Retaking the course and receiving a grade of "B" or better does *not* replace the

original grade on the student's record.

A grade of "U" or grades below "B" on six (6) or more graduate credit hours in the Department's core courses will result in the dismissal of the student from the Biostatistics Graduate Program and disqualification for a graduate degree in Biostatistics.

The core courses for M.S. in Biostatistics are: BIOS 701, BIOS 709, BIOS 711, BIOS 712, BIOS 745, BIOS 757, BIOS 758, and EPID 701.

## *Annual Academic Review of M.S. Students*

All master's students who remain in the program after two years must complete an academic progress report by October 1 of their third fall semester, and every fall semester following.

Forms will be distributed to students from the department and an announcement/reminder of this requirement will be made each fall. There are two parts to the evaluation and review: a part completed by the student and a part completed by the student's thesis advisor. The academic progress report will be evaluated by the Department's Leadership Team, which includes the Department Chair, Division Director, and Graduate Program Director. Students will receive a letter following the Leadership Team's review informing the student of their progress and any steps that should be taken to improve progress toward degree.

## *Program of Study*

The Program of Study is a critical step to accomplish for each graduate student in the Biostatistics program. The Program of Study lists all courses taken to fulfill degree requirements. The Program of Study is developed by the student and academic advisor by the completion of the spring semester of student's first year. All coursework taken by the student must be approved by the academic advisor and Graduate Director. To ensure you have included all required courses, please use the M.S. in Biostatistics Degree Requirements listed on page 43 as your guide. The Program of Study Form (MPOS) must be signed by the student, student's academic advisor and the Graduate Director and filed with The Graduate School no later than the end of the first year. Courses taken for undergraduate credit can never be on any program of study.

Any changes to the MPOS form must be submitted to the Graduate Director using the Request for Adjustment in Graduate Program form (GS-43 or POSA) prior to graduation.

## *Transfer Credits*

The Program of Study may include graduate credits transferred from another UofSC program or another institution. To be accepted for transfer credit, the courses must:

- Be relevant to the program into which they are transferred.

- Have course content equivalent to similar courses at UofSC, and a level of instruction equivalent to that of the Arnold School of Public Health.
- Have a grade of “B” or better from an accredited institution.
- Be completed within the six-year period for courses used in the master’s program.
- Must not have appeared on another program of study.

Transfer credit is at the discretion of the department and must be approved by the Graduate Director. The student may be required to provide course syllabi (including course schedule) and transcript verifying grade received prior to approval of transfer credits. **No more than 12 hours of graduate credit can be transferred to master’s programs in Biostatistics.**

## *Revalidation of Out-of-Date Courses*

The maximum time for degree completion is six (6) years for master’s students. The Graduate School requires that the student’s Program of Study not have any courses taken more than six years ago for master’s students. However, it is still possible to revalidate the courses that exceed these deadlines. The requirement for revalidation of the courses will be left up to the discretion of the faculty member who originally taught the student. If the instructor is no longer on the faculty, a faculty member who currently teaches the class will be responsible for revalidating the coursework. See your Graduate Director for more information. The form (PRE-Permit for Revalidation Examination) is available on the Graduate School [Forms Library website](#).

## *Examinations (Progression and Comprehensive)*

In addition to the coursework, each student must pass (or be exempt from) the Progression Exam and the Comprehensive Examination. At the end of the first spring semester during which the departmental core courses are completed, each student must take the Progression Examination (or meet the criteria for exemption). This exam must be passed before continuing in the program and registering for thesis hours. At or near completion of the required departmental coursework (i.e., on program of study), each student must satisfactorily complete a Comprehensive Exam.

### **Examination Schedule**

	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>
Progression*	14-May	13-May	12-May	10-May
Progression retake †	13-Aug	12-Aug	11-Aug	9-Aug
Comprehensive ‡	29-Jan	28-Jan	27-Jan	26-Jan
Comprehensive retake*	14-May	13-May	12-May	10-May

\* Friday of the first full week after Spring commencement

† Friday before the first day of Fall semester

‡ Third Friday of Spring semester

# *Progression Examination*

## **Purpose**

The purpose of the exam is to evaluate the knowledge acquired by the student in the core and major courses during their first year. Successful completion of the exam allows the student to continue with their second-year courses.

## **Registration**

All master's students in their first year will be automatically registered to take the Progression Examination. The students who meet the criteria for being exempt from the Progression Exam will receive an exemption letter from the Graduate Director. The students who do not meet the exemption criteria will receive notification that they need to take the Progression Exam from the Graduate Director.

A student, not meeting the exemption criteria, who completes the department core courses in the spring semester and does not take the exam during that semester will receive a failed attempt unless they have made prior arrangements with the Graduate Director due to emergency circumstances.

## **Exemption Rules**

Biostatistics students meeting the following criteria are exempted from taking the Progression Examination and may continue with fall coursework: 1) an overall GPA of 3.5 with no grades of "C" or below upon completing the following first-year courses: BIOS 701, EPID 701, BIOS 757, BIOS 758, STAT 512, BIOS 709, BIOS 711, and BIOS 712; and 2) a grade of "B+" or better in both BIOS 757 and BIOS 758.

## **Exam Preparation**

The exam is prepared by the Division of Biostatistics' Exam Committee. Students will be tested on material from BIOS 701, BIOS 757, BIOS 758, EPID 701 and STAT 512.

The Progression Examination will be in a classroom setting. The exam will be closed book, but students will be provided with a formula sheet of the standard formulas needed for the exam content. Students may use a calculator but electronic devices (including laptops, cell phones, etc.) are forbidden.

## **Results**

The Progression Examination is graded as a simple pass/fail. Students who have taken the exam will be notified in writing of the results as soon as possible after faculty finish grading the examination.

Faculty members will not discuss exam results with any individual student until all

students have received official notification. After students have been notified of results, a student may meet with their academic advisor to discuss their performance on the exam.

If a student does not pass the Progression Examination during the spring administration, they will be allowed to retake the exam in August, the Friday before the fall semester classes begin. A student who must repeat the Progression Examination may take one or more courses (with the exception of thesis hours) during the Summer semesters but will not be allowed to register for classes in a major semester (fall or spring) until a satisfactory performance on the exam is recorded. The Progression Examination retake could include the completion of the entire exam or a portion of the exam, at the discretion of the Examination Committee and the Graduate Director. **If a student does not pass the Progression Examination on the second attempt, they will not be allowed to continue in the program.**

## *Comprehensive Examination*

The Comprehensive Assessment, required by the University for all master's students, is in the form of a comprehensive examination. The Comprehensive Exam must be no more than two years prior to the student's graduation; any student who has not graduated within two years of completing the Comprehensive Exam must retake it.

### **Purpose**

The purpose of the exam is to evaluate the knowledge acquired by the student in the core and major courses and to evaluate mastery of the major concepts and methodologies in the discipline.

### **Registration**

In most instances the Comprehensive Exam will be taken on completion of major coursework, defined as satisfactory completion or current enrollment in all departmental courses listed on the student's program of study (or within at least 3 credit hours thereof), excluding thesis preparation or public health practice. Thus, master's students will generally take this exam during their second year in the program.

Students must register with the Program Coordinator to take the Comprehensive Examination. Registration is open from one month prior to two weeks prior to the exam.

If a student registers to take the Comprehensive Examination and does not take it, this will count as a failed attempt unless the registration is cancelled at least one week prior to the examination date.

### **Exam Preparation**

The exam is prepared by the Division of Biostatistics' Exam Committee with assistance from other Biostatistics faculty. The examination focuses on the theory and methods presented in BIOS 758, BIOS 759, BIOS 761, STAT 512, STAT 513, as well as more advanced topics from BIOS 701 and BIOS 757.

The Comprehensive Examination will be in a classroom setting. The exam will be closed book, but students will be provided with a formula sheet of the standard formulas needed for the exam content. Students may use a calculator but other electronic devices (including laptops, cell phones, etc.) are forbidden.

## **Results**

The Comprehensive Examination is graded as a simple pass/fail. Students taking the Comprehensive Examination will be notified in writing of the results as soon as possible after faculty evaluation of the Examination.

Faculty members will not discuss exam results with any individual students until all the students have received official notification. After students have been notified of results, a student may meet with their advisor to discuss their performance on the exam.

Each student is allowed **two attempts** to pass the Comprehensive Examination. If the second attempt is required, the second attempt will occur at the end of the spring semester on the Friday of the first full week after commencement. Because the student has essentially completed their program of study, they may take additional elective courses during this time. **If a student does not pass the examination on the second attempt, they will not be allowed to continue in the program.**

# Degree Requirements for M.S. in Biostatistics

A minimum of 44 credit hours is required for the Master of Science in Biostatistics. Students are required to have two semesters of calculus and an introductory course or its equivalent in matrix algebra or will be expected to make up the deficit beyond the minimum program of study. Additional courses may be required to meet prerequisites or to accommodate electives.

## Summary of Degree Requirements for M.S. in Biostatistics

SPH Core	3 hours
Department Core	16 hours
Major Courses	16 hours
Electives	3 hours
Thesis	<u>6 hours</u>
Total	44 hours

## School of Public Health Core (3 hours)

PUBH 700 (3) Perspectives in Public Health

## Department Core (16 hours)

BIOS 701 (3) Concepts and Methods of Biostatistics  
BIOS 757 (3) Intermediate Biostatistics  
BIOS 758 (3) Advanced Biostatistics  
EPID 701 (3) Concepts and Methods of Epidemiology  
BIOS 745 (1) Seminar in Biostatistics  
BIOS 709 (1) Introduction to SAS Programming  
BIOS 711 (1) Introduction to R Programming  
BIOS 712 (1) Introduction to Stata Programming

## Major Courses (16 hours)

BIOS 759 (3) Biostatistical Methods for Rates and Proportions  
BIOS 761 (3) Survival Analysis  
BIOS 770 (3) Applied Longitudinal Data Analysis  
STAT 512 (3) Mathematical Statistics  
STAT 513 (3) Theory of Statistical Inference  
BIOS 746 (1) Complex Survey Analysis

## Electives (3 hours)

Electives are chosen from courses at the University which support the overall educational goals of the student. The Faculty Advisor must approve all elective courses.

## Recommended Electives:

BIOS 760 (3) Biostatistical Methods in Clinical Trials  
BIOS 765 (3) Research Design in the Biomedical Sciences  
BIOS 805 (3) Categorical Data Analysis  
BIOS 811 (3) Survival Analysis II  
BIOS 820 (3) Bayesian Biostatistics and Computation  
BIOS 822 (3) Statistical Methods in Spatial Epidemiology  
BIOS 825 (3) Public Health Applications of Multivariate Methods  
EPID 741 (3) Epidemiologic Methods I  
STAT 518 (3) Nonparametric Statistical Methods  
STAT 519 (3) Sampling

## Thesis (6 hours)

BIOS 799 (6) Thesis Preparation

## *Typical Course Sequence for M.S. in Biostatistics*

Semester	1	2		3	4
	Fall	Spring	Summer	Fall	Spring
<b>PUBH 700 (3)</b>	PUBH 700 (3)				
<b>DEPT CORE (16)</b>	EPID 701 (3)	BIOS 757 (3)			
	BIOS 701 (3)	BIOS 758 (3)			
	BIOS 709 (1)	BIOS 712 (1)			
	BIOS 711 (1)				
	BIOS 745 (1)				
<b>MAJOR COURSES (16)</b>		STAT 512 (3)		BIOS 759 (3) BIOS 761 (3)	BIOS 770 (3) BIOS 746 (1)
				STAT 513 (3)	
<b>ELECTIVES (3)</b>					ELECTIVE (3)
<b>THESIS (6)</b>				BIOS 799 (1)	BIOS 799 (5)
<b>Total Credits (44)</b>	12	10		10	12

Students also have the option of taking STAT 512 in the first summer session. If you would like to take thesis hour(s) in the fall of your second year, this may be a good option for you.

# Master's Thesis

## *Purpose of the Master's Thesis*

All M.S. students must complete a research project culminating in a thesis. The purpose of the master's thesis is to apply the principles and methods learned during coursework and demonstrate competence of basic biostatistical research with applications in epidemiology and public health. After completion of the thesis, the student should be able to demonstrate the ability to:

- Extend a known statistical technique to a new area, or apply a known technique in a novel manner;
- Review the current literature as context for the research question;
- Describe the statistical issue in the context of the current literature or a real data problem which motivates the proposed approach and the focus of the thesis;
- Conduct analyses to illustrate the technique or statistical issue;
- Clearly present and interpret the results;
- Draw appropriate inferences based on the results;
- Discuss the findings in context of the current knowledge literature and implications for public health and future research.

## *Thesis Committee*

Students must pass (or be exempted from) the progression examination before forming the Thesis Committee and beginning thesis work. The student, in consultation with their Academic Advisor, will select a Thesis Chair from the departmental faculty. The selection of the Thesis Chair should reflect the student's area of research interest. The Thesis Chair is primarily responsible for advising and mentoring the student throughout the thesis. The Thesis Chair and student will work together to identify additional members of the Thesis Committee. The student is expected to be actively involved in assembling the committee, asking each prospective faculty member if they would be willing to serve. The committee will consist of a minimum of three members, including the Thesis Chair and at least one other departmental faculty member whose interests are related to the student's research goals. The third member may be from any other academic department who has an interest in the student's research area. Additional members having special expertise may serve at the student's and Thesis Chair's discretion. Once the committee members are finalized, the student completes a Master's Thesis Committee Appointment Form and submits it to Graduate Director for approval.

## *Registering for Thesis Hours*

Students can register for thesis credit hours (BIOS 799) only if approved by the Thesis Chair and actively working on the thesis. A total of six thesis credit hours are required for

graduation. If a student completes the requisite six thesis credit hours and has not defended and submitted the thesis, the student must register for at least one thesis credit hour each semester that they are working on the thesis. Contact the Program Coordinator to be assigned to a thesis section.

## *Deadlines*

The complete thesis must be read, critically evaluated, and approved by all members of the Thesis Committee. In accordance with [Graduate School guidelines](#), the following deadlines must be met.

- a. Initially, the student **must prepare a written thesis proposal and conduct a presentation** to the Thesis Committee for approval. Typically, the thesis proposal consists of the introduction, literature review, potential issues/motivations, and methodology that the student intends to use for the thesis. In many cases, this forms the basis of the first two chapters of the final thesis. The presentation of the proposal should be no less than 3 months prior to the thesis defense. The Thesis Proposal Approval form must be submitted to the Graduate Director upon completion of proposal defense (see Forms section).
- b. A First Draft of Thesis should be submitted to the Thesis Committee at least two weeks before the defense (six weeks before the date of graduation), or earlier if specified by the committee (please refer to the suggested timetable on page 48).
- c. The final copy is to be submitted to each committee member at least 30 days prior to the end of the semester (see timetable for approximate dates) or at least two weeks prior to the thesis defense, whichever is earlier (please refer to the suggested timetable on page 48).
- d. The thesis defense should be scheduled after all members of the Thesis Committee receive the final copy of the thesis.

Announcements of the presentation should be posted at least one week prior to the defense. The thesis defense should be scheduled in an available classroom or conference room. Please contact the Program Coordinator to prepare announcements and schedule a room.

There are two phases of the thesis defense: public presentation and the oral exam. The candidate must publicly present the thesis in a 30-45-minute presentation. Following this, the candidate must pass an oral examination, which shall be administered immediately following the presentation and evaluated by the Thesis Committee. The oral examination will focus on the technical and scientific aspects of the thesis topic and may cover any subject matter relevant to the student's field of study. One of three decisions may be reached at the end of the thesis defense: 1) accepted as is; 2) accepted on the condition that certain changes are made within a specified time frame; 3) rejected.

Not later than five weeks before graduation, the thesis draft should be submitted via the electronic thesis and dissertation (ETD) process to The Graduate School for preliminary thesis format check. The student can view the format guide, ETD samples, and templates and submit their document at the Thesis & Dissertation portal. The student is responsible for making sure the thesis meets The Graduate School's requirements.

All Thesis Committee members must approve the final version and sign the Thesis Signature and Approval form (TSF) (see Forms). If the student, with committee approval, should wish to publish a manuscript from their thesis, a letter requesting delayed release (embargo) of dissemination must accompany the TSF, signed by the student's Thesis Chair and Graduate Director.

- e. The student should provide each Thesis Committee member a PDF copy of the thesis as submitted to The Graduate School or in a manner agreed upon by the committee member. Final approval is given by The Graduate School via the ETD process. The final approved thesis must be submitted via the ETD process no later than 20 days before graduation.
- f. Specified deadlines can be shortened if the majority of faculty in the student's division (epidemiology or biostatistics) vote to allow an exemption.

## *Human Subjects Approvals*

In consultation with the Thesis Chair, the student may need to obtain IRB approval. All thesis research involving human subjects must be reviewed and approved by the appropriate ethics review committee. Research qualifying for exemption (typically secondary data analysis of existing data, observational studies with adults, or evaluation of service/public activities) should be approved by the SPH Institutional Review Board Liaison. The IRB application must be completed online at <http://orc.research.sc.edu/irb.shtml>. It will be necessary to register the first time you enter the site. Some projects must also be approved by the review committee at the agency where the research is conducted. Any necessary approvals must be obtained prior to beginning work on the defined thesis tasks. Some thesis activities related to an ongoing research project may be covered under that project's IRB approval. This should be discussed with the project principal investigator and/or Thesis Chair. In most situations, notification of the IRB or IRB liaison of a change in protocol is sufficient.

## Approximate Thesis Milestone Deadlines

Task	For graduation in		
	May	August	December
Suggested thesis proposal defense – must be at least 3 months prior to thesis defense	Early January	Early April	Early August
First complete version to committee – at least 3 weeks prior to final defense	Early March	Early June	Early October
Suggested defense date – do not wait until the last day to defend	Late March	Late June	Late October
Thesis defense deadline AND Thesis format and check deadline via ETD	Early April	Early July	Early November
Final submission of thesis approved by committee – submitted via ETD	11 days after final defense deadline (3 <sup>rd</sup> week April)	11 days after final defense deadline (3 <sup>rd</sup> week July)	11 days after final defense deadline (3 <sup>rd</sup> week Nov)

**\*IMPORTANT: Please note that these dates are only approximations of the actual dates. It is your responsibility to check the updated school calendar regarding the actual dates.**

## Master's Thesis FAQs

### When should I start working on my master's thesis?

The process can begin, at least informally, as soon as the student starts the program. Students are encouraged to discuss ideas with faculty members and advisors. Attending departmental, research center/institute, school-wide, and university seminars to learn about the research of faculty members or emerging topics in the field may help one develop a topic. Other ways to begin the thesis include reading and researching topics that you find interesting and working as a graduate research assistant.

### How can I find a dataset to analyze for my master's thesis?

There are several publicly available datasets (e.g. BRFSS, NHANES, and NHIS). Additionally, students may be granted access to a faculty member's research data. However, written permission from whomever controls that dataset, and necessary IRB approval, must be obtained.

### What are the roles of the thesis committee members?

The Thesis Chair has the primary responsibility for advising you throughout the entire thesis process. This includes helping you to form the thesis committee, providing close guidance and feedback (i.e., help to refine research question, identify sources of data), convening and chairing committee meetings, and helping you troubleshoot issues and develop high quality thesis drafts.

The other committee members may advise on the designing the project, analysis of data, simulation design and interpreting the results. These members may also provide comments, offer expertise on the development of your thesis, and review drafts of the thesis.

### **What are acceptable research topics for a biostatistics thesis?**

Acceptable research topics for a biostatistics thesis include the development of a new data analytic method, detailed study of an existing method or comparison of performance of various methods (e.g., simulation study), a software development of an existing method without an available package, and a review or synthesis of a new or emerging area of statistical methodology or application.

### **Am I required to publish my master's thesis?**

Publishing the master's thesis is not a requirement for earning the master's degree. However, the thesis should be of sufficient quality to serve as the basis for publication in a peer-reviewed journal (a master's thesis will usually contain substantially more detail than is appropriate for journal publication). As a department committed to the highest levels of scholarship and to your professional well-being, we encourage publication of your master's thesis. Regardless of your career path, first authorship on a peer-reviewed publication reflects the quality of your thesis research and will open doors in the public health practice and research settings. You are encouraged to discuss this with your Thesis Chair.

### **How many pages is the thesis proposal? The thesis?**

There are no requirements for this – it varies greatly from student to student and depends on the nature and scope of the project proposed. Students are encouraged to read theses of students who have graduated from the department to get an idea as to the scope and length. You can access theses and dissertations using the [Dissertations and Theses Global Database](#) on the library website.

# Ph.D. in Biostatistics

## Goals and Learning Objectives for the Ph.D. in Biostatistics

The Doctor of Philosophy prepares students, through quality lecture and practical experiences and other research opportunities, for involvement in teaching and independent and collaborative biostatistical research; and trains researchers to teach and to pursue original research on analytical approaches to investigating health-related conditions, and to develop novel biostatistical approaches. The following goals are premised upon having successfully met all the objectives delineated previously for the M.S. degree.

**Goal #1.** Ph.D. program graduates will demonstrate a mastery of biostatistical techniques well beyond that required of an M.S. degree and will also demonstrate the ability to develop original methodological approaches.

- Learning outcome #1. Students will display command of a wide variety of biostatistical techniques and have a deeper understanding of these techniques than an individual with master's level training.

**Goal #2.** Ph.D. program graduates will demonstrate the ability to teach topics in Biostatistics in a formal classroom setting.

- Learning outcome #2. Students will demonstrate the ability to present basic statistical material in a formal classroom setting.

**Goal #3.** Ph.D. program graduates will demonstrate the ability to perform biostatistical consulting, including data analysis and interpretation.

- Learning outcome #3. Students will demonstrate the ability to consult with clients outside of the university setting and provide them with statistical assistance on a health-related problem.

**Goal #4.** Ph.D. program graduates will publish material from their dissertations in peer-reviewed professional journals in the areas of Biostatistics or Statistics.

- Learning outcome #4. Students will communicate results of newly developed techniques through publications and teaching.

**Goal #5.** Ph.D. program graduates will demonstrate an overall mastery of the core concepts of public health.

- Learning outcome #5. Students will demonstrate an understanding of current

public health practice and how various health-related disciplines contribute to achieving public health goals.

# Important Dates and Forms

<b>Fall 2021</b>	
Dates	Details
prior to Arriving	Subscribe to EPIDBIOS listserv & register for MySPH
prior to Arriving	Advisement must be completed before you can register for classes. Contact Graduate Director Robert Moran ( <a href="mailto:rrmoran@mailbox.sc.edu">rrmoran@mailbox.sc.edu</a> ), and complete and submit an Advisement form.
July 15	Deadline to register for Fall classes using Self Service Carolina (SSC).
August 9-13	<a href="#">Graduate Assistantship Training and International Teaching Assistant Training</a>
August 17-18	New Student Orientation
August 19	First Day of classes
August 25	Last Day to Change/Drop a Course without a W
September 6	Labor Day (no classes)
October 7-8	Fall Break (no classes)
October 11	Contact your advisor about registering for spring 2022 classes
November 3	Last day to drop without a WF
November 24-28	Thanksgiving Break (no classes)
December 3	Last Day of Classes
December 6-13	Final Exams
<b>Spring 2022</b>	
To Do	Details
January 10	First Day of classes
January 17	Martin Luther King Day of Service (no classes)
January 18	Last Day to Chang/drop a course - after this date all drops with a W.
March 1	See your advisor about registering for Fall 2022 classes. Contact Graduate Director
March 6-13	Spring Break (no classes)
March 26	Last day to drop without a WF
April 25	Last Day of Classes
April 27-May 4	Final Exams
May 13	Deadline to submit Doctoral program of Study (DPOS)

# Advisement and Progression Information

## *Academic Advisor/Mentor*

After admission to the Department of Epidemiology and Biostatistics, each student will be assigned a departmental faculty member to serve as an academic advisor/mentor. Generally, this advisor will work with the student throughout the course of the program. Students are advised as to appropriate courses, sequencing of courses, independent study topics, dissertation topic, consulting and teaching practicum, and any additional work appropriate to preparing the student to meet career objectives. The student may ask the Graduate Director for a change of academic advisor for a variety of different reasons; students are encouraged to speak with the Graduate Director well in advance if contemplating a change in advisor.

## **Communication**

Clear and regular communication is critical to establishing and maintaining a meaningful working relationship between you and your Advisor. Expectations should be discussed at the first meeting between the student and Advisor to include the following: preferred methods of communication (e.g., email, telephone, walk-in, etc...); frequency of meetings; and who is responsible for scheduling meetings

## *Advisement*

Students meet with their academic advisor before each semester to fill out an advisement form (AS-122). In the advisor's absence, the form can be signed by the Graduate Director. This form must be filled out and either turned in (PHRC 108) or emailed ([sphstsrvc@mailbox.sc.edu](mailto:sphstsrvc@mailbox.sc.edu)) to the Office of Graduate Student Services (GSS) before a student can register for classes. GSS will check for any holds on a student's registration. Once all holds have been cleared, GSS will email the approved advisement form to the student at which time they can register online for classes. Be sure to include your email address on your advisement form.

## *Annual Academic Review of Doctoral Students*

Each doctoral student's academic progress is evaluated annually by the student's academic advisor and by the Department's Leadership Team, which includes the department Chair, Division Directors, and Graduate Program Directors for each program. An email announcement/reminder, letter from the Chair, and form is sent to each student every spring. There are two parts to the evaluation and review: a section completed by the student and a section completed by the student's academic advisor and/or dissertation chair. All students receive a letter from the Department Chair indicating whether progress towards degree is satisfactory or unsatisfactory, including steps to improve progress, if warranted.

The annual report covers the following information:

1. Academic record including:
  - a) overall grade point average;
  - b) any incomplete courses;
  - c) transcript
  - d) overall progress toward completing the coursework phase of the program.
2. Submission of an approved Doctoral Program of Study form
3. Progress in completing or preparing for the Qualifying exam
4. Discussion of progress in acquiring research experience (including citations for participation in conference presentations and peer-reviewed publications)
5. Formation of dissertation committee
6. Development of the dissertation proposal and planning for presentation of the proposal
7. Progress toward degree completion

## *Academic Standard for Progression*

**NOTE: The following departmental policy is more stringent than the Graduate School policy.**

All graduate students are subject to the academic policies, regulations, and academic standards of both The Graduate School and the department, school and/or college in which enrolled. Grades of “U” and/or grades below “B” on nine (9) or more graduate credit hours taken at the University within a ten-year period will result in the dismissal of the doctoral student from the Department of Epidemiology and Biostatistics Graduate Program and disqualification for a graduate degree in Biostatistics. This rule applies to all graduate courses taken at the University of South Carolina whether or not they are included on the student’s Program of Study; it also applies to courses taken in two or more degree programs.

Additionally, for Biostatistics Doctoral students, grades below “B” on six (6) or more graduate credit hours in 800 level biostatistics courses will result in the dismissal of the Biostatistics doctoral student from the Department of Epidemiology and Biostatistics Graduate Program and disqualification for a graduate degree in Biostatistics. Students are not required to retake the course. If, however, a student should choose to retake the course, a grade of “B” or better does *not* replace the original grade on the student’s record.

## *Program of Study*

A doctoral student, in consultation with the Advisory and/or Dissertation Committee (described on page 60 under Doctoral Committees), must submit a Doctoral Program of Study (DPOS) form to the Graduate Director by May 1<sup>st</sup> of year 1. The DPOS form must be signed by the student, student’s academic advisor, and the Graduate Director prior to

submission to The Graduate School for approval. DPOS approval is required for official candidacy.

The number of credit hours listed on the program of study is calculated as following:

54 hours – # of content credit hours + # of transfer credit hours = total hours on Program of Study

The definition of content credit and transfer credit are listed below. Approved transfer credits are listed on the program of study, but approved content credits are NOT listed. Further requirements of the DPOS can be found in The Graduate School Bulletin.

Given all Biostatistics doctoral students are required to have completed a master's degree prior to admission, the program of study submitted to the Graduate School must meet the following requirements:

1. Forty-two credit hours unique to the University of South Carolina, taken to fulfill requirements for the degree, which includes 12 credit hours of dissertation (BIOS 899)
2. At least half of the courses are at a 700 level or higher
3. The Advisory Committee has signed off on the program of study
4. Pre-requisite courses (Biostatistics: EPID 701, BIOS 701, BIOS 757, BIOS 709, BIOS 711 and BIOS 712) cannot be included on the program of study
5. Courses taken for undergraduate credit can never be included on any doctoral program of study

University of South Carolina courses at the 500 and 600 level (which can be graduate or undergraduate), and any other such courses taken at other institutions, may be acceptable if they are outside of the student's discipline but applicable to the student's area of study. For example, a 500-level statistics class for an epidemiology major, or a 500-level geography course for a student working with geographic information systems (GIS) as part of the dissertation are acceptable.

Occasionally, changes are needed in the Program of Study. In this case, a Program of Study Adjustment Form (POSA) must be filed with the Graduate School. Extra courses taken, which are not required for graduation, should not be listed on the Program of Study. The DPOS and POSA forms can be found in the Forms section or by contacting the Program Coordinator.

## *Transfer Credit*

Students may transfer credits (up to 12 hours maximum) from previous graduate coursework, provided the credits were NOT part of a completed degree program. Students wishing to transfer credits for inclusion on their program of study must complete a Request for Transfer Credit Form (G-RTC) for each course they wish to transfer. All requests must be accompanied by the course syllabus and be approved by the student's

academic advisor, Graduate Director, and the Graduate School. To be listed on the doctoral program of study, transfer courses must have been completed at an accredited institution, with a grade of “B” or better, within ten years preceding the date of doctoral graduation. Transfer credits older than 10 years earned at another institution cannot be revalidated for use on a program of study. BIOS students cannot transfer any hours for STAT courses below the 700 level to the doctoral Program of Study.

## *Content Credit*

With the approval of student’s academic advisor and Graduate Director, up to 12 hours of course requirements can be satisfied by previous graduate coursework (content) which was part of a completed master’s degree. All content coursework must be completed within 10 years of doctoral graduation, and the final grade in each course must be “B” or better. The student is responsible for providing course syllabi and/or other supporting documentation. Content coursework older than 10 years earned at another institution cannot be revalidated. Biostatistics students cannot use Statistics courses below the 700 level as content coursework.

## *Qualifying Examination*

### **Purpose**

The purpose of the Qualifying Examination is to assess the student’s technical knowledge and ability to successfully complete a dissertation. This exam must be passed before admission to doctoral candidacy and continuation in the program and must be completed at least one full academic year prior to the date the doctoral degree is awarded.

### **Registration**

The Qualifying Examination is administered the third Friday of the spring semester. Doctoral students who completed a master’s degree in Biostatistics at the University of South Carolina are encouraged to take the Qualifying Examination following their first year in the doctoral program. Students admitted from master’s programs at other universities may wait to take the Qualifying Examination until their second year of doctoral studies. All doctoral students must take the Qualifying Examination by their second year of doctoral studies.

A student must receive their academic advisor’s approval before registering for the Qualifying Examination. Registration is open from one month prior to two weeks prior to the exam.

If a student registers to take the Qualifying Examination and does not take it, this will count as a failed attempt unless the registration is canceled at least one week prior to the examination date.

## Exam Preparation

The exam is prepared by the Division of Biostatistics' Exam Committee with assistance from other Biostatistics faculty. The Examination will consist of two parts. The first part is in the morning, generally from 9:00 a.m. to 1:00 p.m., and the second part is in the afternoon, after a break for lunch. The morning session will focus on master's level coursework including BIOS 758, BIOS 759, BIOS 761, STAT 512, STAT 513. The afternoon session will focus on more advanced concepts, both applied and theoretical, or a mix thereof, as well as synthesizing concepts across various Biostatistics and Statistics courses.

Students who completed a master's degree in Biostatistics at the University of South Carolina and passed the Comprehensive Examination within two years of the date they are scheduled to take the Qualifying Exam are exempted from taking the morning session of the Qualifying Exam.

The Qualifying Examination will be in a classroom setting. The exam will be closed book, but students will be provided with a formula sheet of the standard formulas needed for the exam content. Students may use a calculator but other electronic devices (including laptops, cell phones, etc.) are forbidden.

## Results

The Qualifying Examination will be evaluated as a whole, and students must pass both sections (i.e. morning and afternoon sessions) separately to satisfy passing of the qualification exam. Students taking the Qualifying Examination will be notified in writing of the results (pass/fail) as soon as possible after faculty evaluation of the Examination.

Faculty members will not discuss exam results with any individual student until all students have received official notification. After students have been notified of results, a student may meet with their advisor to discuss their performance on the exam.

Each student is allowed two attempts to pass the Comprehensive Examination. Students who fail the Qualifying Examination on the first attempt will receive feedback on gaps in mastery of material identified on the exam and will need to take the exam again. Students only need to retake the session which they failed.

The Qualifying Exam retake is offered on the date listed in the table below. If a student does not pass the examination on the second attempt, they will not allowed to continue in the program.

The examination schedule for Qualifying Exams is listed in the following table:

Type of Exam	2022	2023	2024
Qualifying†	1/28/2022	1/27/2023	1/26/2024
Qualifying retake ‡	5/12/2022	5/11/2023	5/10/2024

† Friday before first day of class in Fall semester

‡ Third Friday of Spring semester

## *Doctoral Candidacy*

Admission to doctoral candidacy and continuation in the program require passing the Qualifying Exam and filing an approved Doctoral Program of Study. Admission to Candidacy must be at least one full academic year prior to graduation, so students should plan for admission to candidacy no later than the end of the second year of study.

## *Residency Requirement*

*Excerpts taken from Doctoral Degree Requirements on The Graduate School's website, which can be found at: <http://bulletin.sc.edu/content.php?catoid=76&navoid=2129>.*

A residency requirement is intended to ensure that doctoral students benefit from and contribute to the full spectrum of educational and professional opportunities provided by working closely with the graduate faculty and other students at a research university.

In the Department of Epidemiology and Biostatistics, doctoral students are required to meet their residency requirement as follows:

**Option 1.** Two consecutive semesters of full-time enrollment. Full time enrollment is defined as enrollment for six hours for students serving as graduate assistants and nine hours for students who are not graduate assistants; consecutive semesters could be fall/spring, spring/summer, summer/fall, or spring/fall. Programs are expected to provide enrichment opportunities beyond course enrollment to help doctoral students understand and meet the intention of the residency requirements.

**Option 2.** A proposal for an individual residency plan may be submitted to The Graduate School for consideration and action.

The student's Doctoral Advisory Committee (see definition in Doctoral Committee session) certifies on the doctoral program of study ([DPOS](#)) form the term dates and courses or other means by which the student satisfies the residency requirement. In the event unique circumstances arise, it may be possible for a student to meet the residency requirement through an individualized plan.

The dissertation hours (BIOS 899) will not count toward the minimum residency requirement. Additionally, seminars (BIOS 845) will normally not count toward the minimum residency requirement.

## *Teaching Practicum*

The teaching practicum focuses on pedagogical and practical issues related to teaching a course in epidemiology or biostatistics. Through the practicum, the student will serve as a junior colleague to the course instructor, and thereby gain experience in all aspects of teaching including session planning, conducting classroom teaching, assessment, and evaluation. The teaching practicum is a required 3-credit course. Students register for the course as an Independent Study (BIOS 890). The following methods courses are generally suitable for a biostatistics student to complete a teaching practicum (BIOS 700, BIOS 701, BIOS 757, and BIOS 761).

To register for the course, the following are needed:

- Identify a course for the practicum. The Graduate Director will facilitate this process taking into account course offerings, requirements of the instructor, and student preference. The course instructor for the course will serve as a faculty mentor.
- Complete a teaching practicum contract (sample available from your academic advisor or Graduate Director). The purpose of the contract is to define the objectives, scope, and responsibilities for the practicum experience. This is prepared in consultation with the faculty mentor and student.
- Complete the Independent Study Contract (ISC) (sample available from your academic advisor or Graduate Director).
- Obtain the schedule code (CRN) and Section for your faculty advisor from the Program Coordinator.
- Obtain the following signatures on your ISC: student, academic advisor, and faculty mentor.
- Turn in your ISC and contract to the Graduate Director who will review, sign, and give to the Program Coordinator for processing.
- Register for BIOS 890 section that has been assigned to you.

During the practicum, the student will work with the faculty mentor as defined in the practicum contract. At the end of the practicum the student will ensure that the Teaching Practicum Evaluation Form is completed by the faculty mentor. The evaluation form will be used by the faculty mentor when determining a student's final grade.

## *Consulting Practicum*

*Note: This is different from the consulting practicum for MPH students. Documentation for that consulting practicum is at MySPH.*

The objective of this course is to provide the student with an opportunity to apply skills learned in the program to a real-world experience by collaborating with an outside health institution. Typically, the consulting practicum consists of data analysis requests from external departments or agencies such as DHEC, a hospital, or other health agency. The consulting practicum is a required 3-credit course. Students register for the course as an Independent Study (BIOS 890).

To register for the course:

- Identify a venue, preceptor, and topic for the practicum. The preceptor is the individual at the external agency with whom the student will work during the practicum (the student's academic advisor or other faculty members can help with this). Identify a faculty advisor (usually the academic advisor).
- Complete a consulting practicum contract (sample available from your academic advisor or Graduate Director). The purpose of the contract is to define the objectives, scope, deliverables, and time of the practicum experience. The contract is prepared in consultation with the faculty advisor, field preceptor, and student.
- Complete the Independent Study Contract (ISC). Attach a copy of your completed consulting practicum contract to your ISC.
- Obtain the schedule code (CRN) and section for your faculty advisor from the Program Coordinator.
- Obtain the following signatures on your ISC: student, academic advisor, and faculty advisor.
- Turn in your ISC with attached contract to the Graduate Director who will review, sign and give to the Program Coordinator for processing.
- Register for BIOS 890 section that has been assigned to you.

During the practicum, the student will work with the preceptor as defined in the practicum contract, keeping the faculty advisor informed.

At the conclusion of the practicum, the student will do the following:

- Deliver what was agreed upon in the contract (usually a written report and presentation). If, for some reason this does not happen within the defined period, the deadline can be extended after consultation with the faculty advisor and field preceptor.
- Ensure that practicum evaluations are completed by the faculty advisor, preceptor, and the student.

## *Doctoral Committees*

Within the first term of enrollment, the student should form a Doctoral Advisory Committee. Doctoral Advisory Committees should have two or more members, including the student's academic advisor and the Graduate Director. This committee will help draft the student's Program of Study. The student is expected to be actively involved in assembling the committee, asking each prospective faculty member if they would be willing to serve on the committee. The committee guides the student's work and offers advice on the Program of Study.

When appropriate, two other committees must be formed – the Written and Oral Comprehensive Examination Committee and the Dissertation Committee, which are subject to approval by the Dean of the Graduate School.

The Written and Oral Comprehensive Examination and Dissertation Committees must consist of a minimum of four faculty members, at least one of whom must be an outside member (from another UofSC department or another institution). The majority of committee members must be on the faculty in the department and must be Regular or Associate Members of the Graduate Faculty. Typically, the same individuals serve on both committees and the chair is the student's Dissertation Chair.

The Doctoral Dissertation Committee Appointment Request Form (G-DCA), found in the Forms section, must be submitted to The Graduate School for approval prior to the Dissertation Proposal and/or Comprehensive Exam Defense. Approval of outside members of the doctoral committees who are not tenure-track graduate faculty at UofSC require a letter of justification and an accompanying CV. If a student has a need for more than one outside member on a dissertation committee, this can be requested by way of a letter of justification from the Program's Graduate Director and is subject to approval by The Graduate School.

## *Doctoral Comprehensive Examination*

The purpose of comprehensive exam is to evaluate: 1) in-depth knowledge acquired by the student in the major area of concentration and in the cognate areas, and 2) the ability to integrate concepts and apply them to biostatistics research studies. The evaluation will include, but is not limited to, determining the extent to which the student is an expert in their dissertation topic area, is well-versed in the relevant literature, is competent in applying biostatistics methodology as they relate to their research area and more broadly to biostatistics research, and can demonstrate independent thinking as a doctoral-level researcher.

The exam is taken after the completion of doctoral coursework and is scheduled for the individual student. The examination must be completed at least 60 days before the date of graduation. The Comprehensive Verification Form must be completed and sent to The Graduate School upon completion of the examination.

This exam is prepared and administered by the Written and Oral Comprehensive Exam committee. The exam is unique to each student and contains written and oral components. Students may choose one of two options for their comprehensive exam, although the final decision rests with the student's Dissertation Chair.

### *Option 1. Traditional Comprehensive Exam (separate from Dissertation Proposal)*

The student's comprehensive exam committee is responsible for choosing the format of the Comprehensive Examination. The oral component of the exam should follow within one month of the written examination. As in the written component, any topic on the student's program of study could be represented in the written component. The examination committee will prepare the oral component based on the student's performance on the written component and may also include questions about material

not covered on the written component. Since the two components of the exam are evaluated together, the committee is not expected to give any response concerning the written component to the student before the oral component.

The exam committee evaluates both the written and oral components of the exam to determine whether the exam has been passed. If a student does not perform satisfactorily, both components must be repeated.

The student is allowed two attempts to pass the examination. If a student does not pass the examination on the second attempt, they are not allowed to continue in the program.

### *Option 2. Comprehensive Examination Combined with Dissertation Proposal*

The dissertation proposal will act as the written component of the Comprehensive Examination. The oral component of the examination *must* include the oral defense of the dissertation proposal and an oral exam of additional questions from the dissertation committee. The oral exam of additional questions should last approximately 30-60 minutes. The total time for the combined dissertation proposal and comprehensive exam should last approximately three hours.

For biostatistics students, the oral exam focuses on questions related to the dissertation topic. Committee members will give the student questions one month prior to the oral examination. Students will prepare answers to the questions which will be assessed during the oral exam. Students are not required to provide written answers but may need or want to use a whiteboard to explain mechanisms or formulas.

Students are *not* allowed to bring in any outside materials or notes during the oral exam. A grade of pass/fail is determined by the committee. A student can pass one or both components (dissertation proposal and comprehensive exam). A student is deemed to have failed if the committee feels their answers do not adequately convey the depth and breadth of knowledge expected of a doctoral candidate. The exam committee will provide specific feedback to the student about the deficiencies. If a student should fail, the component(s) that need to be repeated are left up to the discretion of the exam committee. Portions can include any or all of the following: written dissertation proposal, proposal defense and/or oral defense of exam questions. If a retake is necessary, the student is strongly encouraged to retake the exam within one to three months following their initial attempt.

# Dissertation Requirements

All doctoral students must complete a research project culminating in a dissertation. The dissertation must be based on original research, typically addressing a basic research problem. *Students must pass the Qualifying Examination* before enrolling in dissertation hours (BIOS 899). The student, in consultation with the Academic Advisor, will select a Dissertation Chair from the departmental faculty. The Dissertation Chair has primary responsibility for advising the student regarding technical work on the dissertation. **Students can register for dissertation hours only if approved by their Dissertation Chair and if actively working on the dissertation that semester.**

## *Deadlines*

The dissertation must be read, critically evaluated, and approved by all members of the Dissertation Committee. In accordance with The Graduate School's guidelines, the following deadlines must be met. The specific dates for a semester are available on The Graduate School home page <http://www.gradschool.sc.edu>. For items b-d below, "end of the semester" refers to the semester the student wishes to complete the Ph.D. program.

- a. Initially, the student **must prepare a written dissertation proposal and conduct a presentation** (Dissertation Proposal Defense) to the Dissertation Committee for approval. The dissertation proposal defense should be scheduled within one year of completion of course work for the student's program of study, and after the student has passed the qualifying exam. If this schedule is not met, the student may be required to form a new dissertation research committee. The presentation of the proposal should occur within a year before graduation from the program and must be no less than six months prior to the dissertation defense.
- b. The Comprehensive Exam should either be scheduled to occur within three to six months after the dissertation proposal defense (Option 1 above), or conducted concurrently with the dissertation proposal defense (Option 2 above).
- c. The first complete draft of the dissertation must be completed within two years of successful completion of the Proposal Defense and Comprehensive Exam. The student may request an extension of this timeline or make other arrangements, with justification. Such requests are subject to approval by the Dissertation Chair and the Dissertation Committee.
- d. The draft dissertation must be in the hands of the Dissertation Committee at least 60 days before the end of the semester (Graduate Studies Bulletin); the approximate dates are October 15, March 15, and June 15 for fall, spring and summer sessions, respectively. This is approximately six weeks before the filing date for the dissertation and should be at least one month before the scheduled defense. The dissertation defense should be scheduled at this time.

- e. The final copy is to be submitted to each committee member at least 30 days prior to the end of the semester or at least one week prior to the dissertation defense, whichever is earlier.
- f. The dissertation defense must be held at least one week before The Graduate School filing date, which is 20 days before the end of the semester.
- g. The student must file the final dissertation by the filing date. Final approval is given by The Graduate School via the ETD process.

## *Dissertation Proposal*

The first step in the dissertation process is the development of the dissertation proposal, and its oral defense before the student's doctoral committee. The presentation of the proposal should be no less than six months prior to the dissertation defense. The committee must provide signatures approving the proposal before the student can proceed with the research and the proposal approval form must be submitted to the Graduate Director (see Forms).

Typically, the dissertation proposal consists of the introduction, literature review, methodology that the student intends to develop, and simulation design for the dissertation. In many cases, this forms the basis of the first three chapters of the final dissertation. *Manuscripts for inclusion in the dissertation may not be submitted and/or published prior to the dissertation proposal defense.*

The student may need to obtain necessary approvals to use the data for the dissertation from data stewards and regulatory bodies.

## *Dissertation Defense*

The candidate must publicly present the results of the dissertation research in a 45-60 minute presentation. Announcements of this presentation should be made at least one week before the defense and must be requested through the Program Coordinator. The dissertation defense should not be scheduled during the scheduled class time of any department core course.

The candidate must also pass an oral examination that shall be administered immediately following the presentation and evaluated by their Dissertation Committee. This examination will focus on the technical and scientific aspects of the dissertation topic and the scholarly delineation of the dissertation topic and may cover any other subject matter relevant to the student's field of study.

Upon successful completion of the Dissertation Defense, all dissertation committee members must provide their original signature on the Dissertation Signature and Approval form. This form, with committee member names typed on the form, must be turned in

along with the dissertation. Students are required to format their dissertation as directed by the Graduate School. Be sure your dissertation meets the [Graduate School's requirements](#). The student should provide each Dissertation Committee member a copy of the final dissertation in a manner acceptable to the committee member.

Evidence of approval to use articles which have been published or accepted for publication must be included for The Graduate School. It is the student's responsibility to secure copyright releases prior to document submission to The Graduate School. The Graduate School will accept a letter or email from the publisher.

## *Human Subjects Approvals*

All dissertation research involving human subjects must be reviewed and approved by the appropriate ethics review committee. Research projects that qualify for exemption (typically secondary data analysis of existing data, observational studies with adults, or evaluation of service/public activities) can be approved by the SPH Institutional Review Board Liaison. The IRB application must be completed online at: [IRB application](#). It will be necessary to register the first time you enter the site. Some projects must also be approved by a review committee at the agency where the dissertation research will be conducted. Any necessary approvals must be obtained prior to beginning work on the defined research. Some dissertation activities related to an ongoing research project may be covered under that project's IRB approval; this should be discussed with the project Principal Investigator and/or Dissertation Director; in most situations, notification of the IRB or IRB liaison of a change in protocol is sufficient.

# **Degree Requirements for Ph.D. in Biostatistics**

Coursework for the Ph.D. in Biostatistics is predicated upon the applicant having college-level courses in calculus and matrix algebra and solid preparation at the master's level in biostatistics. Additional scientific background in the social or biological sciences is desirable.

For applicants holding master's degrees in disciplines other than Biostatistics, preparatory course requirements will be set at the discretion of the faculty. As a minimum, applicants should have: a) completed the equivalent of I-1/2 years of university-level calculus, i.e. through multivariable calculus (equivalent courses at UofSC include MATH 141, MATH 142, MATH 241); b) completed an introductory course or its equivalent in matrix algebra, including matrix operations and solutions of matrix equations; c) completed a year of mathematical statistics, the equivalent of STAT 512 and STAT 513; and d) mastered the knowledge and skills taught in the following basic courses: EPID 701, BIOS 701, BIOS 757, BIOS 709, BIOS 711, and BIOS 712.

Applicants without evidence of the above knowledge-base will be expected to take the necessary basic courses immediately upon entry. The preparatory course requirements as specified by faculty are in addition to the minimal 54 hours of doctoral requirements. Per CEPH requirement, all doctoral students are required to take PUBH 700, a general public health course, as part of their curriculum. The requirement may be waived with Graduate Director's approval if a student can provide evidence of having taken a similar course during their master's degree program. In lieu of this course, the student will be required to take an additional three cognate hours to replace this course.

## Degree Requirements for Ph.D. in Biostatistics (cont.)

Course Number	Title	Credit Hours
<b>SCHOOL OF PUBLIC HEALTH CORE</b>		
PUBH 700	Perspectives in Public Health	3
<b>STATISTICS CORE</b>		
STAT 712	Mathematical Statistics 1	3
STAT 713	Mathematical Statistics 2	3
STAT 714	Linear Statistical Models	3
<b>BIOSTATISTICS CORE</b>		
	800 Level Biostatistics Courses	9
<b>COGNATES (ELECTIVES)</b>		
BIOS 845	Doctoral Seminar (1 credit per semester for 3 semesters) <sup>1</sup>	3
BIOS 890	Teaching Practicum	3
BIOS 890	Consulting Practicum	3
<b>COGNATES (ELECTIVES)</b>		
	Cognates	3
	Other Biostatistics and/or Statistics	9
<b>DISSERTATION</b>		
BIOS 899	Dissertation Preparation	12
<b>TOTAL REQUIRED CREDIT HOURS<sup>2</sup></b>		<b>54</b>

<sup>(1)</sup> One credit hour of EPID 845 may be substituted.

<sup>(2)</sup> With the exception of master's core courses (EPID 701, BIOS 701, BIOS 757, BIOS 709, BIOS 711 and BIOS 712 and their equivalents), up to 12 hours from previous graduate work can be used as "content" credit toward their program of study with the approval of the student's advisor and the Graduate Director. The final program of study must also meet the minimum university post baccalaureate of 60 hours, minimum 30 post master's hours, minimum 30 hours taken at UofSC, and all "content" credit coursework must be taken within 10 years of the time of graduation.

# FINANCIAL ASSISTANCE AND ASSISTANTSHIPS

In addition to financial aid and fellowship information described in the Graduate Studies Bulletin, a limited number of traineeships and assistantships are available. Faculty will nominate outstanding applicants for highly competitive fellowships offered through the Arnold School of Public Health and the UofSC Graduate School. The UofSC Office of Student Financial Aid and Scholarship provides access to a variety of grants and loans for students in the Graduate School. For further information and application forms for all types of financial aid, contact them at (803) 777-8134 or visit their [website](#).

## *Behavioral-Biomedical Interface Program (BBIP)*

The Behavioral-Biomedical Interface Program (BBIP) is an interdisciplinary research training program designed for select students beginning their doctoral studies in Epidemiology, Exercise Science, or Psychology. This training program is supported in part by a National Institutes of Health T32 pre-doctoral research training grant 5T32GM081740 from the National Institute of General Medical Sciences. BBIP focuses on cross-cutting themes related to prevention and developmental sciences broadly defined. BBIP is training the next generation of behavioral scientists with respect to biomedical conceptual frameworks and methods applied to understanding, treating, and preventing adverse health conditions/disorders and promoting optimal health outcomes. To be considered, prospective applicants must apply jointly to BBIP and Epidemiology and must be a US citizen or US permanent resident. BBIP applicants are first year prospective applicants to the PhD program. For further information or to apply for this training grant, see the [BBIP website](#).

## *Assistantships*

### **Purpose**

A limited number of graduate assistantships are available for full-time students. These assistantships provide in-state tuition rate and a stipend in return for 10-20 hours of work per week for faculty of the Department of Epidemiology and Biostatistics, in other departments on campus, or other organizations. A graduate assistant is a student who assists, under faculty supervision, functions related to teaching, research or other services that would otherwise be performed by regular faculty and staff members. In so doing, graduate assistants receive valuable practical experience in preparation for future teaching, research, or administrative responsibilities.

Assistantships funded by nonprofit organizations or state agencies other than UofSC must be approved by the Dean of the Graduate School. Students appointed to such positions work for the sponsoring organizations but are under the general supervision of

their departmental faculty. When faculty identify positions in other agencies, they try to see that the major duties are related to academic skills that are a part of the discipline.

## Requirements

- Must be fully admitted to a degree program and enrolled in The Graduate School.
- Must maintain a 3.0 GPA, and generally good academic standing.
- Must have received a satisfactory evaluation in previous assistantship positions.
- For Teaching Assistants (TA), must co-register for or have previously completed GRAD 701 – Teaching Assistant Development.
- International students are required to attend two additional sessions: International Student Services' Orientation and English Programs for International Teaching Assistant (ITA) training sessions.
- Must be registered for a minimum of six (6) semester hours in the Fall and Spring semesters. If a student is registered for fewer than six (6) semester hours in the Fall or Spring semesters, the student will not be eligible for a graduate assistantship, unless they are finished with their coursework and have filed an exemption (Z-status) with the Graduate School.
- Must adhere to the work schedule determined jointly by the supervisor (faculty or agency supervisor) and student.
- Once a signed commitment to an assistantship position has been made, no change in position can be made without discussion by and approval of the Graduate Directors.

## Hours, Fees and Other Issues of Employment

- Graduate assistants are special part-time employees of the University and should treat the assistantship as they would a professional job.
- Graduate assistants are expected to devote full-time effort to their studies and their assistantship responsibilities. They are discouraged from having additional employment, on or off campus, during the term for which they are appointed. It is University policy that no student shall be permitted to hold more than the equivalent of one University half-time assistantship (20 hours per week).
- The student is expected to work 10-20 hours per week (depending on their assistantship appointment) with pay appropriate to the total hours worked. Students with graduate assistantships qualify for in-state (resident) tuition and program fees (see the [Bursar's website](#)). Tuition supplements are available for some Graduate Assistants either paid by department funds or contracts, on a sliding scale based on the number of credit hours taken and the number of hours

of the assistantship or as indicated in the student's offer letter. The amount of the supplement is prorated for fewer hours worked or fewer course credits taken. Graduate assistantships outside the Department may not include a tuition supplement or may supplement at a different rate.

- Assistants appointed after the first 30 days of a semester (10 days of a summer term), whose duties terminate before the midterm date, or whose duties terminate before they earn the minimum stipend amount will be billed for full term tuition.
- Students will be evaluated on their performance in their assistantship at the end of every semester using the appropriate form. Assistants who fail to perform their duties satisfactorily may be terminated from their appointment. The Department is not obligated to offer assistantships in succeeding semesters for students terminated from an assistantship for this reason.
- Assistants do not accrue sick leave, so work missed due to illness should be made up.
- Graduate assistants are normally not expected to work during official school holidays or between semesters. Students requesting time off for quizzes, examinations or extended holidays may be required to make this time up. Official school holidays are Labor Day Holiday, Fall Break, Election Day (every other year), Thanksgiving Holiday, Spring Break, Easter Holiday, and Independence Day Holiday. However, some assistantships may require work during the holidays and between semester periods. Work schedules should be arranged with the supervisor at the beginning of each semester.

## **Required Teaching Assistant Training for Incoming Doctoral Students**

As an entering doctoral student, you must register for the Graduate School's teaching assistant and instructional assistant (TA/IA) training and GRAD 701 (no cost and 0 credits). Prior to or concurrent with your first UofSC teaching experience, all graduate students must successfully complete this training. If you do not complete the requirements, you will not be considered credentialed for performing TA duties (even if you were teaching the semester you were enrolled), and you may lose your assistantship funding and in-state tuition. The link to register for orientation/training is: [TA Orientation](#). Training is offered in Fall and Spring semesters.

## **Additional Orientation & TA Training Requirements for International Students**

In addition to participation in the TA/IA workshop, all **international graduate students** must attend the International Teaching Assistant Training Workshop (ITA) and receive a satisfactory evaluation of their oral English skills to be eligible for appointment as a teaching/instructional assistant. For more detailed information, please visit the [ITA workshop](#) website or contact English Programs for Internationals: [epi-info@epi.sc.edu](mailto:epi-info@epi.sc.edu) or call 803-777-3867.

## **Placement in Assistantships**

The Department makes every reasonable effort to place students in assistantships that are consistent with the students' academic interests. However, the Department is not obligated to identify an assistantship that perfectly matches the student's interests in every instance. Also, in some instances it may be necessary to place a student in an assistantship designed primarily to fulfill the Department's current needs. These positions will be consistent with the Department's goal of developing the student's abilities through the assistantship experience. Students who do not complete assigned assistantships satisfactorily are not guaranteed additional assistantships in succeeding semesters, even if this has been previously promised.

## **Time Limitation of Assistantships for Master's Students**

The Department is committed to supporting students who are honored with guaranteed assistantships, as outlined in the student's admission letter. If a student desires funding for a period longer than defined in this letter, they may be considered for additional assistantships at the Department's discretion. In these instances, however, the student will have lower priority for Department funding than other students. Students should recognize that they may not be funded via assistantships for the full duration of their degree program, and plan accordingly. This time limitation applies only to master's students who are offered guaranteed assistantships when admitted; the Department is not obligated to ensure that assistantships will be arranged for other master's students who desire them, although we make every reasonable effort to assist these students to obtain assistantships. Successful placement in an assistantship for those not receiving a guaranteed placement does not obligate the Department to fund these students in succeeding semesters.

## **Time Limitation of Assistantships for Doctoral Students**

Doctoral students are typically supported through research assistantships or teaching assistantships. These assistantships are an integral part of the student's doctoral preparation. They also provide the student with useful professional contacts, often forming the basis of research collaborations leading to publications and other benefits, and for letters of recommendation that are critical elements of the student's application for professional positions following graduation. While the Department is pleased to honor its doctoral students with this support, doctoral students should recognize that the period of guaranteed support is limited to what is outlined in their admission letter. Thereafter, some students who continue to work actively on degree studies may receive continued support if it is available through sponsored research funds. However, the Department is not obligated to provide continued funding to students beyond what is stated in the letter and should plan accordingly.

## Other

- Assistantships are usually for a set time commitment. Any student considering a change in assistantship before the end of the agreed time must consult with their supervisor and the Graduate Director.
- Some assistantships may require the student to adhere to a dress code commensurate with the respective assignment.
- Some assistantships may require travel, work at odd hours, or flexibility of hours. A graduate assistant should be very clear with their supervisor about the time they can be available.
- No graduate assistant is expected to work more than the agreed upon hours. However, graduate assistants are encouraged to look for opportunities to attend meetings, seminars, etc., which will enhance their learning or development of specific skills. These activities may or may not be included in the paid hours of the assistantship.
- Open communication is a key to good working relationships as a graduate assistant. Supervisors are willing to accommodate assistant needs but must be aware of the needs. Remember, supervisors of students are in charge and are responsible for setting graduate assistant work schedules.
- Assistantships will not be offered to satisfy any academic requirements, including practice requirements and thesis/dissertation research.

## *Travel Grants*

There are two opportunities for students to receive funding for travel:

- Funding is available through the Dean's office with the maximum award being \$300. Priority will be given to students who have not received a previous travel award from the school; no student will receive more than one award in a fiscal year.
- The Graduate School also offers funding, ranging up to \$500 for domestic travel and up to \$800 for international travel. Qualified students may receive up to two travel grants during their tenure in the graduate school.

For both awards, the department may match funding up to \$450. For more information, including the applications and submission deadlines, please visit the [ASPH Travel Funding website](#) and The [Graduate School Travel Funding website](#).

# COURSE DESCRIPTIONS

NOTE: The academic bulletin and this student handbook are for information purposes only and do not constitute any contractual agreement between a student and the University of South Carolina. The University reserves the right to make changes in curricula, degree requirements, course offerings, or academic regulations at any time when, in the judgment of the faculty, the president, or the Board of Trustees, such changes are in the best interest of the students and the University.

## *Arnold School of Public Health Courses*

- ENHS 660     **Concepts of Environmental Health Science.** (3) (every semester). Environmental health sciences presenting the earth as a complex system in which people, plants, animals and non-living physical-chemical components interact.
- PUBH 700     **Perspectives in Public Health.** (3) (every semester, online). Seminar-format orientation to history, mission, and core services and disciplines of public health to develop understanding of current public health practice and how many health-related disciplines contribute to achieving public health goals.
- PUBH 725     **Quantitative Methods for Public Health Practice.** (5) (every fall). Provides students with an integrated review of quantitative methods used in public health practice, using from the disciplines of epidemiology, biostatistics and environmental health. Students will conduct assessments, create surveys and related databases, and analyze and interpret data collected.
- PUBH 726     **Qualitative Methods for Public Health Practice.** (3) (every fall). Introductory qualitative methods course focusing on understanding the characteristics of qualitative methods, including data collection, organization, and analysis. Students will also learn about the role of theory and paradigms in qualitative inquiry and how to identify, work with, and communicate qualitative analysis results with different types of community stakeholders.
- PUBH 730     **Public Health Systems, Policy, and Leadership.** (3) (every spring). Designed to prepare future public health professionals with the knowledge and skills needed to solve public health problems using systems thinking tools, best practices in public health management, and policy development, application, and evaluation. It emphasizes identifying and enhancing the knowledge and skills needed to effectively lead public health initiatives.

- PUBH 735 **Practical Applications of Public Health Planning.** (4) (every spring). Provides the opportunity for students to gain an in-depth understanding of the program planning process in public health. Students will work in teams to develop programs addressing a public health issue affecting a target population and setting, based on available epidemiological and social assessment data, and multi-level interventional strategies informed by theory and existing evidence-based interventions.
- PUBH 678 **Transforming Health Care for the Future.** (1) (every spring). Provides the foundation for beginning health professions and public health students to gain an understanding of the complexities of the healthcare system and the importance of interprofessional collaboration to improve the system. Through experiential activities conducted in interprofessional teams, students will explore the art and science of teamwork and communication skills, cultural competency, ethical issues, healthcare disparities, and social determinants of health.
- PUBH 810 **Ethics in Public Health Research and Practice.** (1) (not currently offered) (Enrollment restricted to doctoral students and post-docs, master's students by permission of instructor). Foundation of public health ethics with application to practice and to responsible conduct of research in public health disciplines.

## *Epidemiology Undergraduate Courses*

- EPID 394 **Special Topics in Epidemiology.** (1-3). Content variable. May be repeated for credit. For undergraduate students only. Course would count as a cognate course in the undergraduate public health curriculum.
- EPID 410 **Principles of Epidemiology.** (3) (every semester and summer) (Required for Public Health undergraduate majors at UofSC) (Prereq or Coreq: STAT 201 or 205). Introduction to descriptive and analytical epidemiology. Topics will include the distribution and determinants of disease, surveillance, outbreak investigations, measures of association, screening tests, bias, and causal reasoning.
- EPID 490 **Independent Study.** (1-3) Enrollment and topic to be approved in advance by advisor and instructor. May be repeated. Prerequisites: permission of instructor.
- EPID 594 **Special Topics in Epidemiology.** (1-6) (Varies). Content variable. May be repeated for credit. Course may be taken by undergraduate or graduate students.
- EPID 661 **Parasitology.** (4) (every spring semester) (Pre-requisite: 300 level Biology course or equivalent). Parasites of biological, economic, and public health

importance. Three lecture and three laboratory hours per week.

## *Epidemiology Graduate Courses*

- EPID 700     **Introduction to Epidemiology.** (3) (every spring in person). Principles of epidemiology with examples of selected health problems. Health status of populations and conceptual tools for translating epidemiologic findings into public health action.
- EPID 701     **Concepts and Methods of Epidemiology.** (3) (every fall) (Prereq or Coreq: BIOS 701 or permission of instructor). Conceptual foundation of epidemiologic research, quantitative methods, and epidemiologic study design. Intended for those who will be involved in epidemiologic research.
- EPID 721     **Clinical and Population Research Protocol Development and Implementation.** (2) (every spring). The purpose of this course is to develop applied research skills related to the development of appropriate clinical and population research protocols for a given public health issue and context.
- EPID 722     **Scientific Writing and Appraisal of Epidemiologic Studies.** (2) (every fall) (prereq: EPID 701, PUBH 725 or permission of instructor). This course will familiarize students with techniques used to critically assess, interpret, evaluate, and synthesize epidemiologic literature. Students will be introduced to research databases, reference management software, reporting guidelines, and methods for systematic reviews. Students will learn how to effectively communicate research finding via manuscript and oral or poster format.
- EPID 725     **Biologic Basis of Public Health.** (3) (not currently offered). Survey of the biology of human disease processes at cellular, tissue and body system levels with the emphasis on the application of biological principles to contemporary public health problems.
- EPID 730     **Public Health Surveillance Systems.** (3) (every fall) (Prereq: EPID 701, PUBH 725 or equivalent course). Introduction to the concepts, implementation, and evaluation of surveillance systems to monitor the health of human populations.
- EPID 741     **Intermediate Epidemiologic Methods.** (3) (every spring) (Prereq: EPID 701, PUBH 725 or equivalent course; Coreq: BIOS 757/758, and **either** Prereq: BIOS 710 or Coreq: BIOS 709). Application of epidemiologic methods to current health problems through analysis of secondary data. Strategies for investigating etiologic hypotheses, assessment and control of confounding.

- EPID 744 **Cardiovascular Disease Epidemiology.** (3) (Prereq: EPID 701, PUBH 725 or equivalent course) (spring of every odd year). Epidemiology of selected groups of cardiovascular diseases (CVD) including etiology, pathophysiology, identification, and description of events of CVD, and outcomes. (Doctoral students: See EPID 844)
- EPID 746 **Cancer Epidemiology.** (3) (spring of every odd year) (Prereq: EPID 700). Epidemiology of selected cancers in humans, including etiology, pathophysiology, identification and description of events of cancer and outcomes.
- EPID 747 **Environmental Epidemiology.** (3) (not currently being offered) (Prereq: EPID 700, BIOS 700). Emphasis on the epidemiology of selected environmental factors which may affect human health including the identification of health hazards and methods of investigation. (Doctoral students: see EPID 847)
- EPID 749 **Infectious Disease Epidemiology.** (3) (every fall) (Prereq: EPID 700 and BIOS 700, or consent of instructor). Covers bacterial, viral, parasitic and fungal diseases of public health importance. Emphasis on epidemiologic methods basic to investigation, prevention and control of infectious diseases.
- EPID 763 **Nutritional Epidemiology.** (3) (every fall) (Prereq: EPID 701, PUBH 725 or equivalent course). Covers methodology for investigating nutrition's role in health, including nutritional assessment and the design and interpretation of research studies. Substantive issues emphasize major public health concerns of the 21<sup>st</sup> century.
- EPID 765 **Reproductive and Perinatal Epidemiology.** (3) (spring of every even year) (Prereq: EPID 701, PUBH 725 or equivalent course and BIOS 701 or permission of instructor). Epidemiology of major reproductive outcomes in humans with emphasis on pathophysiology, risk factors, analytic methods of investigation and surveillance/monitoring of reproductive events. (Doctoral students: see EPID 865)
- EPID 767 **GIS and Public Health Applications.** (3) (Every even fall). Principles and application of basic and intermediate-level GIS technologies in public health practice and research. (Doctoral students: see EPID 867)
- EPID 768 **Psychiatric Epidemiology.** (3) (every fall) (Prereq: EPID 701, PUBH 725 or equivalent course). Methodologic issues in the epidemiologic study of psychiatric disorder, the epidemiology of mayor psychiatric outcomes, and issues in the study of special populations.

- EPID 770 **Social Epidemiology.** (3) (every even spring) (Prereq: EPID 701, PUBH 725 or equivalent course). Influence of social factors and the distribution of those factors on patterns of health and disease. Including individual-level examinations of the role of social determinants in producing health, as well as more macro-level examinations of patterns of social disparities in health status.
- EPID 777 **Fundamentals of Epidemiology.** (3) (every spring) (Prereq: EPID 701, PUBH 725, or equivalent course; BIOS 701). This course is an introduction to the field of genetic epidemiology, providing students with an understanding of: 1) basic genetics, 2) the tools used by geneticists and genetic epidemiologists, and 3) the integration of genetic data into traditional epidemiologic and computational software tools used to analyze genetic data.
- EPID 788 **Practical Methods for Secondary Data Analysis.** (3) (every fall) (Prereq: EPID 700/701, BIOS 700/701, and EPID 741 or equivalent research methods class and intermediate statistics class, such as BIOS 757/758, BIOS 754, etc.; Instructor reserves the right to waive pre-requisites). Introduction to data sources and methods commonly used by epidemiologists and health analysts in state or federal health departments and research settings. Methods include data management and analysis using SAS, data interpretation, survey designs, and innovative record linkages.
- EPID 790 **Independent Study.** (1-6) (Prereq: permission of instructor). Directed research on a topic to be developed by MPH or MS student and instructor. May be repeated.
- EPID 794 **Special Topics in Epidemiology.** (1-6). Content varies by title. May be repeated for total of 6 credit hours.
- EPID 796 **Integrated Learning Experience.** (1) (Pre-requisites: PUBH 725, 726, 730, 735, EPID 741 or permission of Graduate Director) (Restricted to EPID MPH students). Demonstrate synthesis of MPH foundational and concentration competencies to address a public health issue in the form of a high-quality written product.
- EPID 798 **Epidemiology Applied Practice.** (2) (Pre-requisites: PUBH 725, 726, 730, 735 or permission of Graduate Director). Apply and test public health concepts, theories, and analytical tools learned in the classroom to real-world public health issues outside of the classroom in any one of a variety of settings.
- EPID 799 **Thesis Preparation.** (1-9). (Prereq: Successful completion of the progression exam).

- EPID 800 **Advanced Methodological Theory in Epidemiology.** (3) (every fall) (Prereq: EPID 741 or permission of instructor). Advanced epidemiologic methods in the design of epidemiologic studies, with emphasis on causal inference. Theories and frameworks of causation and interactions between causes and graphical visualization tools.
- EPID 801 **Advanced Analytical Methods in Epidemiology.** (3) (every spring) (Prereq: EPID 741 and BIOS 757 or equivalent courses). Application of advanced analytical methods, relying heavily on problem solving, data analysis and interpretation.
- EPID 802 **Grant Writing for Epidemiologists.** (3) (every spring) (Prereq: EPID 741 or permission of instructor). Extension of research design and development issues with focus on writing a major research grant application.
- EPID 820 **Seminar in the Epidemiology of Health Effects of Physical Activity.** (3) (currently not offered) (Prereq: EPID 741, BIOS 759). Seminar presentation and group discussion on the major issues in the study of physical activity and exercise and its impact on health.
- EPID 844 **Advanced Cardiovascular Disease Epidemiology: Evidence Synthesis and Evaluation.** (3) (Meets with EPID 744, every odd Spring). The purpose of the course is to provide a comprehensive overview of the field of cardiovascular disease epidemiology and enable the student to gain a thorough understanding of the population burden of CVD and its contributing factors. Emphasis will be placed on using evidence synthesis tools such as systematic reviews and meta-analyses to evaluate the scientific literature. Students will gain experience in evaluating systematic reviews and developing a protocol for a systematic review/meta-analysis.
- EPID 845 **Doctoral Seminar.** (1) (every semester) (Prereq: complete at least one semester of coursework and consent of instructor). May be repeated for credit up to 3 times as content varies by title. Seminar covers topics such as plagiarism and professional writing (845A), contemporary issues and novel methodological approaches in the field of epidemiology (845B), and career development (845C). (Pass/Fail grading)
- EPID 847 **Advanced Environmental Factors and Human Health.** (3) (Not currently being offered) (Prereq: EPID 701 or PUBH 725, BIOS 701). Advanced methods encompassing the investigation of environmental factors and how they affect human health. Emphasis on reading and interpreting the peer reviewed scientific literature and developing a systematic literature review and grant proposal

- EPID 865 **Methods in Reproductive and Perinatal Epidemiology.** (3) (Meets with EPID 765, offered every even spring) (Prereq: EPID 701 or PUBH 725, BIOS 701). This course provides an overview of reproductive and perinatal epidemiology and the applications in the field of Maternal and Child Health. It covers the current and emerging topics in this area. Designed for doctoral students with interests in conducting research related to reproductive and perinatal epidemiology.
- EPID 867 **Geographic Information Systems for Public Health Research.** (3) (Meets with EPID 767, every fall). Principles and application of basic and intermediate-level GIS technologies in public health research. Designed for doctoral students with interest in conducting health-related research using GIS methods.
- EPID 869 **Clinical Effectiveness.** (3) (varies) (Prereq: EPID 701, PUBH 725 or equivalent course). This course develops skills in the application of epidemiologic methods to clinical effectiveness research, defined as generating evidence to inform stakeholders about treatment options, and improve treatment safety, quality, efficiency and effectiveness.
- EPID 877 **Advanced Methods and Concepts in Nutritional Research.** (3) (varies) (Prereq: EPID 763 or permission of instructor). Advanced methods and concepts in nutrition research addresses aspects of nutrition ranging from nutritional biochemistry to dietetics and community nutrition education. It covers disciplinary breadth encompassing the study of effects of dietary exposures on inflammation, epigenetics, immune function, psychological states and traits, physiologic states, and pathophysiologic processes, including carcinogenesis.
- EPID 890 **Independent Study.** (1-3) (Prereq: permission of instructor). Directed research on a topic to be developed by doctoral student and instructor.
- EPID 894 **Special Topics in Epidemiology.** (1-3). Content varies by title. May be repeated for credit.
- EPID 899 **Dissertation Preparation.** (1-12) (Prereq: one full year (18 hrs.) of graduate study beyond the master's level and successful completion of the qualifying exam).

## *Biostatistics Graduate Courses*

- BIOS 700 **Introduction to Biostatistics.** (3) (every semester). Health related statistical applications. Descriptive statistics, probability, confidence intervals, hypothesis testing, regression, correlation, ANOVA. May not be used for graduate credit in epidemiology or biostatistics.

- BIOS 701     **Concepts and Methods of Biostatistics.** (3) (every fall). Descriptive and inferential statistical applications to public health. Probability, interval estimation, hypothesis testing, measures of association. For students planning further study in epidemiology or biostatistics.
- BIOS 709     **Basic Software for Public Health.** (1) (every fall, Spring & summer). Statistical data management techniques. Microcomputer applications, communication between microcomputers and mainframe, tape and disk storage, access to large health-related databases.
- BIOS 710     **Effective Data Management for Public Health.** (3) (every fall & summer). This course teaches techniques for creating and using small data sets. Students will become familiar with four software packages used for data entry, data management, and presentation, PC/SAS, STATA, MS Excel, and MS Access.
- BIOS 711     **Introduction to R Programming.** (1) (every fall). Students will learn the software program R for performing data management. R software includes basic to advanced commands for properly formatting data for analysis for public health data.
- BIOS 712     **Introduction to Stata Software.** (1) (every fall). Students will learn the software program Stata for performing data management. The course covers basic to advanced commands for properly formatting data for analysis for public health data.
- BIOS 714     **Introduction to MS Access for Public Health.** (1) (every fall). This course focuses the uses of Microsoft Access for data management in public health. The course takes the student through building tables, forms, queries, reports and finishes with automated scripts for each of use with Access.
- BIOS 719     **Advanced SAS Methods for Public Health.** (1) (every fall). Building upon skills learned in BIOS 709 (Introduction to SAS), students will learn data management using PROC SQL & SAS Macro Language which prepares data for conducting efficient statistical analysis.
- BIOS 745     **Seminar in Biostatistics.** (1-2) (every fall & spring). Analysis of current and prospective issues in biostatistics, including historical foundations. Includes student exploration of unsolved problems and examination of central issues in biostatistics. (Pass/Fail grading)
- BIOS 746     **Introduction to Complex Survey Data Analysis.** (1-2) (every fall & spring). Students will learn the basics of data collection methods, sampling design for linear, logistic, and survival analysis complex models using survey data. (Pass/Fail grading)

- BIOS 751 **Health Data Systems.** (3) (currently not offered) (Prereq: HSPM 700, BIOS 700). Origin and operation of databases serving governmental and institutional policy and management of programs.
- BIOS 752 **Vital Record and Health Survey Data Analysis.** (3) (currently not offered) (Prereq: BIOS 700, BIOS 710, EPID 700). Assessing, managing, analyzing, and interpreting results from state and national vital records and health survey data sets. Common problems, programming techniques, and analytic considerations.
- BIOS 753 **Community Health Studies.** (3) (currently not offered) (Prereq: EPID 700, BIOS 700, consent of instructor). Process, skills, and management of undertaking health studies in the human community.
- BIOS 754 **Discrete Data Analysis.** (3) (every fall) (Prereq: BIOS 757 and EPID 700/701). Analysis of discrete data in public health studies. Relative risk, odds ratio, rates and proportions, contingency tables, logistic regression, introduction to other advanced topics. Not for Biostatistics majors.
- BIOS 755 **Introduction to Longitudinal Data Analysis.** (3) (every spring) (Prereq: BIOS 757). An introduction to principles and methods for longitudinal data, which are often encountered in practice where multiple measures are observed over time on an individual. This course is designed for non-biostatistics major researchers, with a focus on data analysis and interpretation more than theoretical development. Problems will be motivated by applications in epidemiology and clinical medicine, health services research, and disease natural history studies.
- BIOS 757 **Intermediate Biostatistics.** (3) (every semester) (Prereq: A course in introductory statistics). Public health applications of correlation, regression, multiple regression, single and multi-factor analysis of variance and analysis of covariance.
- BIOS 758 **Advanced Biostatistics.** (4) (every spring) (Prereq: BIOS 701). Additional topics in analysis of health data including regression diagnostics, multicollinearity of observational data, ridge/nonlinear regression, principal components, random/missed effects, unbalanced designs, repeated measures, and sampling and design effects.
- BIOS 759 **Theory of Discrete Data.** (2-3) (every fall) (Prereq: EPID 701 and BIOS 757). The concepts, principles and biostatistical techniques necessary to analyze categorical epidemiological data including dose response curves, life tables and discrete measures of association. Estimation of parameters for logistic and other commonly used epidemiological models.
- BIOS 760 **Biostatistical Methods in Clinical Trials.** (3) (fall of every odd year) (Prereq: EPID 700, BIOS 700, EPID 741, BIOS 757). This course will cover the basic and advanced statistical techniques necessary for the design,

conduct, analysis and interpretation of results of clinical trials.

- BIOS 761 **Survival Analysis.** (3) (every fall) (Prereq: BIOS 757 or equivalent). Methods for the analysis of survival data in the biomedical setting. Underlying concepts; standard parametric and nonparametric methods for one or several samples; concomitant variables and the proportional hazards model.
- BIOS 765 **Research Design in the Biomedical Sciences.** (3) (spring of every odd year) (Prereq: BIOS 757). Fundamentals of constructing, analyzing, and interpreting biomedical studies; internal and external validity, sample size determination, completely random designs, blocking, crossover designs, confounding, nested designs, repeated measure designs.
- BIOS 770 **Applied Longitudinal Data Analysis [= STAT 771].** (3) (every spring) (Prereq: BIOS 757 or STAT 701 or STAT 705). Modern methods for the analysis of repeated measures, correlated outcomes, and longitudinal data, including repeated measures ANOVA, generalized linear models, random effects, and generalized estimating equations.
- BIOS 780 **Introduction to Quantile Regression.** (3) (spring of every even year) (Prereq: BIOS 757). Principles and methods for quantile regression analysis, which is a robust statistical approach that extends the classical mean regression analysis based on least squares.
- BIOS 790 **Independent Study.** (1-6) (Prereq: permission of instructor). Directed research on a topic to be developed by MPH or MSPH student and instructor. May be repeated.
- BIOS 794 **Special Topics in Biostatistics.** (1-6).
- BIOS 798 **Public Health Practice.** (1-6) (Prereq: 9-10 hours of specified courses including EPID 700, EPID 741, BIOS 700). Performance of a limited work of service project in a public need setting, pursuit of planned learning objectives related to previously identified aspects of the student's chosen role. Self-monitoring and regular seminars focusing on learning accomplishments. (Pass/Fail Grading)
- BIOS 799 **Thesis Preparation.** (1-9).
- BIOS 805 **Categorical Data Analysis.** [=STAT 770] (3) (fall of every even year) (Prereq: BIOS 759 or STAT 704 and consent of instructor). Advanced methods for analysis of discrete data. Higher order contingency tables, log-linear and other generalized linear models. Multivariate methods for matched pairs and longitudinal data.

- BIOS 811 **Survival Analysis II.** (3) (spring of every even year) (Prereq: BIOS 761). Parametric survival analysis accelerated failure time model, frailty model, competing risk model and multi-state model. Techniques motivated by applications in epidemiology and clinical medicine research, applications demonstrated using public health data sets.
- BIOS 816 **Advanced R Programming for Public Health.** (3) (spring of every odd year) (Prereq: BIOS 711). This course provides the principles and techniques to efficiently design, implement, and execute simulation and data analysis routines in quantitative fields like biostatistics, statistics, engineering, finance, and data science.
- BIOS 818 **Advanced Computational Statistics for Signal and Network Analysis.** (3) (spring of every odd year) (prereq: BIOS 711 & BIOS 757). This course provides an overview of advanced computational statistics for signal and network analysis with a wide variety of social, genomic, and neuroscientific applications.
- BIOS 820 **Bayesian Biostatistics and Computation.** [=STAT 745] (3) (fall of every odd year) (Prereq: BIOS 757 or STAT 705). Bayesian methodology for randomized trials, epidemiology, survival, bioassay, logistic and log-linear regression modeling, longitudinal data, classification and bioinformatics, advances in computational methods.
- BIOS 822 **Statistical Methods in Spatial Epidemiology.** (3) (fall of every even year) (Prereq: BIOS 757 and 759). A comprehensive introduction to the statistical methods used in the analysis of geo-referenced spatial health data. Topics range from disease mapping to prospective surveillance.
- BIOS 825 **Multivariate Biostatistics.** (3) (fall of every even year) (Prereq: STAT 516 or BIOS 757). Analysis of multivariate data as found in biomedical studies; multivariate linear models, principal components analysis, factor analysis, discriminant and cluster analysis. Other special multivariate topics such as principal components regression.
- BIOS 845 **Doctoral Seminar.** (1) (Prereq: complete at least one semester of coursework and consent of instructor). May be repeated for credit. (Pass/Fail grading)
- BIOS 890 **Independent Study.** (1-3) (Prereq: permission of instructor). Directed research on a topic to be developed by doctoral student and instructor. May be repeated.
- BIOS 894 **Special Topics in Biostatistics.** (3). Discussion on current and emerging issues in biostatistics. May be repeated for credit.

BIOS 898 **Doctor of Public Health Practicum.** (1-6).

BIOS 899 **Dissertation Preparation.** (1-12) (Prereq: one full year (18 hrs.) of graduate study beyond the master's level).

# FORMS

## *Forms Available on Graduate School Website*

1. [Course Overload Enrollment Authorization \(GS-54 CEO\)](#)
2. [Dissertation Signature and Approval Form \(G-DSF\)](#)
3. [Doctoral Committee Appointment Request \(GS-48 G-DCA\)](#)
4. [Doctoral Comprehensive Exam Verification](#)
5. [Doctoral Program of Study \(DPOS\)](#)
6. [Graduate Assistant Appeal to Work 21-25 Hours \(GAA\)](#)
7. [Grievances, Appeals and Petitions form \(G-GAP\)](#)
8. [Independent Study Contract \(GS-50 G-ISC\)](#)
9. [Master's Comprehensive Exam Verification](#)
10. [Master's Program of Study \(MPOS\)](#)
11. [Master's Thesis Signature and Approval Form \(G-TSF\)](#)
12. [Permit for Course Revalidation Examination \(GS-04 PRE\)](#)
13. [Program of Study Adjustment Form \(GS-43 POSA\)](#)
14. [Qualifying Exam Verification](#)
15. [Request for Special Enrollment or Z-status \(GS-ZS\)](#)
16. [Request for Transfer of Graduate Credit \(G-RTC\)](#)
17. [Survey of Earned Doctorates \(SED\)](#)

## *Forms Available on Departmental Website*

[https://www.sc.edu/study/colleges\\_schools/public\\_health/study/areas\\_of\\_study/epidemiology\\_biostatistics/student\\_toolkit/index.php](https://www.sc.edu/study/colleges_schools/public_health/study/areas_of_study/epidemiology_biostatistics/student_toolkit/index.php)

1. Checklist for Master's Students
2. Checklist for Doctoral Students
3. Advisement Form (ASPH Form)
4. Doctoral Dissertation Proposal Form (Department form)
5. Master's Committee Appointment form (Department form)
6. Master's Thesis Proposal Form (Department form)
7. Early Clearance Procedures
8. Delayed Embargo Request Template

## *Request for Travel Authorization available online*

[https://www.sc.edu/study/colleges\\_schools/public\\_health/study/areas\\_of\\_study/epidemiology\\_biostatistics/epid\\_bios\\_travel\\_authorization/index.php](https://www.sc.edu/study/colleges_schools/public_health/study/areas_of_study/epidemiology_biostatistics/epid_bios_travel_authorization/index.php)

Travel requests must be submitted and approved before the travel can commence. Receipts for all expenses must be submitted to the Program Coordinator immediately following the approved travel. Contact Program Coordinator with questions or additional travel information.