



*Department of  
Epidemiology and Biostatistics*

# **Graduate Student Handbook 2019-2020**



*Arnold School of Public Health  
University of South Carolina*



# 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. It is my greatest hope that we can provide you with an exceptionally rewarding educational experience that helps you to fulfill your career aspirations.

After more than 40 years of dedication to high quality teaching and research, our department has a proud tradition of excellence. You are now part of this tradition. The department's long-term success is rooted in a deep, abiding commitment to advance the public's health through research and by training the next generation of epidemiologists and biostatisticians. We seek to offer rigorous training in a collegial, supportive environment. 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. Taken in combination, our intention is that the skills you acquire forge you into a graduate poised to be a public health leader not only prepared to control today's health threats but also prepared to lead in tackling the unforeseen public health challenges of the future.

During your time here, I encourage you to embrace the full spectrum of learning opportunities the department offers outside of the classroom. Please plan to regularly attend the monthly departmental seminars. In addition, try to attend student thesis and dissertation defenses, journal clubs, and other seminar series as frequently as possible to enrich your learning experiences. You will be expected to demonstrate expertise in a specific content area for your thesis or dissertation research, but deepening the breadth of your understanding of key issues facing epidemiology and biostatistics will carry you far in the long run.

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  
Department of Epidemiology and Biostatistics

# TABLE OF CONTENTS

|   |    |
|---|----|
| <u>OVERVIEW</u> .....   | 5  |
| <u>Arnold School of Public Health Mission, Vision, and Values</u> ..... | 5  |
| <u>Centers and Programs</u> .....                                       | 7  |
| <u>COMMUNICATION</u> .....  | 11 |
| <u>Listserv, Departmental Seminar</u> .....                             | 11 |
| <u>Graduate Directors and Staff</u> .....                               | 12 |
| <u>Faculty</u> .....  | 13 |
| <u>THE DEPARTMENT OF EPIDEMIOLOGY AND BIostatISTICS</u> ...             | 21 |
| <u>Mission, Vision, Value</u> .....                                     | 21 |
| <u>Degree Programs Offered</u> .....                                    | 23 |
| <u>ACADEMIC INTEGRITY</u> .....   | 25 |
| <u>MASTER’S DEGREE PROGRAMS</u> .....                                   | 28 |
| <u>M.P.H. in Epidemiology</u> .....                                     | 29 |
| <u>Important Dates and Forms</u> .....                                  | 29 |
| <u>Advisement and Progression Information</u> .....                     | 30 |
| <u>Goals and Learning Outcomes</u> .....                                | 33 |
| <u>Degree Requirements and Course Sequencing</u> .....                  | 34 |
| <u>Epidemiology Applied Practice (EPID 798) &amp; FAQ’s</u> .....       | 36 |
| <u>Integrated Learning Experience (EPID 796) &amp; FAQ’s</u> .....      | 42 |
| <u>M.S.P.H. in Epidemiology</u> .....                                   | 45 |
| <u>Important Dates and Forms</u> .....                                  | 45 |
| <u>Advisement and Progression Information</u> .....                     | 47 |
| <u>Goals and Learning Outcomes</u> .....                                | 50 |
| <u>Degree Requirements and Course Sequencing</u> .....                  | 51 |
| <u>Thesis &amp; FAQ’s</u> .....   | 53 |
| <u>M.S.P.H. in Biostatistics</u> .....                                  | 58 |
| <u>Important Dates and Forms</u> .....                                  | 58 |
| <u>Advisement and Progression Information</u> .....                     | 60 |
| <u>Goals and Learning Outcomes</u> .....                                | 66 |
| <u>Degree Requirements and Course Sequencing</u> .....                  | 68 |
| <u>Thesis</u> .....   | 70 |
| <u>DOCTORAL PROGRAMS in Epidemiology and Biostatistics</u> .....        | 75 |
| <u>Important Dates and Forms</u> .....                                  | 76 |
| <u>Advisement and Progression</u> .....                                 | 78 |
| <u>Program of Study</u> .....   | 78 |
| <u>Content and Transfer Credit</u> .....                                | 79 |
| <u>Doctoral Student Annual Report</u> .....                             | 80 |

|  |         |
|--|---------|
| <u>Qualifying Exam</u> .....   | 81      |
| <u>Doctoral Candidacy</u> .....  | 82      |
| <u>Residency</u> .....   | 83      |
| <u>Teaching and Consulting Practica</u> .....  | 84      |
| <u>Doctoral Committees</u> .....   | 85      |
| <u>Comprehensive Examination</u> .....   | 86      |
| <u>Dissertation Requirements</u> .....   | 88      |
| <br><u>Ph.D. in Epidemiology</u> .....   | <br>91  |
| <u>Competencies and Learning Outcomes</u> .....  | 91      |
| <u>Degree Requirements including pre-requisites</u> .....                                | 92      |
| <br><u>Ph.D. in Biostatistics</u> .....  | <br>94  |
| <u>Competencies and Learning Outcomes</u> .....  | 94      |
| <u>Degree Requirements including pre-requisites</u> .....                                | 95      |
| <br><u>FINANCIAL ASSISTANCE, BBIP, TRAVEL GRANTS, &amp; ASSISTANTSHIPS</u> .....         | <br>97  |
| <br><u>DESCRIPTION OF COURSES</u> .....  | <br>102 |
| <br><u>FORMS</u> .....   | <br>112 |
| <br><u>RESOURCES</u> .....   | <br>114 |
| <br><u>APPENDICES</u> .....  | <br>116 |
| <u>I. Epidemiology MPH Foundational Competencies</u> .....                               | 117     |
| <u>II. Epidemiology MPH Foundational Public Health Knowledge Competencies</u> .....      | 119     |
| <u>III. Required Competencies for MPH Epidemiology Applied Practice (EPID 798)</u> ..... | 120     |
| <u>IV. Master's Student Annual Report (for 3+ Year Students)</u> .....                   | 121     |
| <u>V. MSPH Epidemiology Thesis Proposal Defense Rubric and Process</u> .....             | 124     |

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.

# OVERVIEW

## *The University of South Carolina*

Among America's oldest and most comprehensive public universities, USC 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. USC 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 USC 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, USC 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 or program 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 the School's funded research activities. In 2015, the Arnolds pledged an additional \$7 million to create the [Gerry Sue and Norman J. Arnold Institute on Aging](#). The new 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.

## 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.

### 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.

#### 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.

### USC 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.

# 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. This 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*

Keep up with what is happening in your department and the Arnold School by subscribing to the Department Listserv. Seminars, class changes, 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 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, for example, [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 won't recognize you as a member and won't delete your subscription).

## *Seminar Attendance*

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**

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

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

### **Administrative Staff**

Emily Tedesco  
Program Coordinator  
[tedescel@mailbox.sc.edu](mailto:tedescel@mailbox.sc.edu)  
803-777-7666

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

# Faculty and Research Areas of Interest

## *Full-time Faculty*

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

Associate Professor, College of Nursing and Department of Epidemiology and Biostatistics and the 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

Assistant Professor

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

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)

**Jim Burch**, PhD., Colorado State University, 1997

Associate Professor

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

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

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

Professor

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

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

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)

**Marco Geraci**, Ph.D., University of Florence, Italy, 2005

Associate Professor

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

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

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

Professor, Associate Dean for Faculty Affairs and Curriculum, Director, Biostatistics Collaborative Unit; Affiliate Faculty, Institute for Families in Society

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**, M.P.H., Ph.D., MT (ASCP), University of South Carolina, 2004

Clinical Associate Professor and Graduate Director for Epidemiology

Research interests: HPV and cancer, clinical research, pedagogy

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

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

Health Sciences Distinguished Professor; 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

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

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

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

Professor

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

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

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)

**Suzanne McDermott**, Ph.D., University of South Carolina, 1991

Professor

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

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

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

Associate Professor

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; Division Head 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; Graduate Director for Biostatistics

Research interests: nutritional instruments; data management

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

**Melissa Nolan**, Ph.D, MPH, Baylor College of Medicine, 2015

Assistant Professor

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

Research interests: semi-parametric models, survival analysis, health aspects of physical activity

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

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

Professor and 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

**Stella Self**, Ph.D., Clemson University, 2019

Assistant Professor

Research interests: Bayesian spatio-temporal modeling, models for forecasting vector-borne disease, multidimensional nonparametric functional estimation



**Susan E. Steck**, Ph.D., University of North Carolina at Chapel Hill, 1999

Associate Professor

Research interests: nutrition and cancer prevention and survivorship, gene-diet interactions in cancer etiology, health disparities, carotenoids

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

**Myriam E. Torres**, Ph.D., MSPH, University of South Carolina, 2001

Clinical Associate Professor; 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

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)

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

Research Assistant Professor; 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**, PhD, University of Texas Health Science Center at Houston & MD Anderson Cancer Center, 2013

Assistant Professor

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)

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

Professor

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

## *Adjunct Faculty*

**Omar Bagasra**, M.D., Ph.D., Adjunct Professor; Professor and Director, South Carolina Center for Biotechnology, Claflin University.

Research interests: molecular basis of infectious diseases and cancer immunology

**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**, PhD. 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.

**Steven P. Cuffe**, M.D., Adjunct Professor; Professor and Chair, Department of Psychiatry, University of Florida, College of Medicine, Jacksonville.

Research interests: child psychiatry, adolescent depression, and childhood sexual abuse.

**Virginie Daguise**, Ph.D., Adjunct Assistant Professor; Epidemiologist at the South Carolina Cancer Association.

Research interests: cancer epidemiology.

**James E. Ferguson**, Dr.P.H., Adjunct Assistant Professor; Deputy Director, Public Health Statistics and Information Systems, South Carolina Department of Health and Environmental Control.

Research interests: community health, epidemiologic methods, and vital statistics methods.

**Nancy Fleischer**, Ph.D., University of Michigan, 2010

Adjunct 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.

**Abdul Ghaffar**, Ph.D., Adjunct Associate Professor; Associate Professor, Department of Microbiology & Immunology, USC School of Medicine.

Research interests: macrophage immunobiology in health and disease (stress, infection, and cancer).

**J. Jerome Gibson**, M.D., Adjunct Professor; Director, Bureau of Disease Control, South Carolina Department of Health and Environmental Control.

Research interests: epidemiology of sexually transmitted diseases.

**Prakash C. Gupta**, Sc.D., Adjunct Professor; Senior Research Scientist, Tata Institute of Fundamental Research, Mumbai, India.

Research interests: tobacco control epidemiology, cancers of the oral cavity and oral pharynx, upper aerodigestive tract cancers, and cancer prevention and control.

**Khosrow Heidari**, MA, MA, MA, Adjunct Instructor, Senior Epidemiology, Bureau of Drug Control, South Carolina Department of Health and Environmental Control

**Sue Heiney**, Ph.D., Adjunct Professor; College of Nursing, University of South Carolina.

Research interests: psychosocial care of cancer patients, specifically group interventions.

**William J. M. Hrushesky**, M.D., Adjunct Professor, Chief Scientific Officer and Senior Executive Medical Director, Oncology Analytics Corporation

Research interests: chronobiology, oncology.

**Michael J. LaMonte**, Ph.D., M.P.H., Adjunct Associate Professor, University of New York at Buffalo, Department of Social and Preventive Medicine.

Research interests: physical activity and health outcomes.

**Caroline A. Macera**, Ph.D., Adjunct Professor; Professor of Epidemiology, Department of Epidemiology and Biostatistics, Graduate School of Public Health, San Diego State University.

Research interests: health effects of physical activity among women and low SES groups; women's health; and factors influencing independent functioning among the elderly.

**Charles E. Matthews**, Ph.D., Adjunct Assistant Professor; Investigator National Cancer Institute - Epidemiology & Genetics, Nutritional Epidemiology Branch.

Research interests: physical activity and disease prevention, cancer epidemiology, energy balance, physical activity assessment and interventions

**Godwin Mbamalu**, Ph.D. FAIC, Adjunct Professor, Distinguished Professor of Chemistry at Benedict College.

Research interests: environmental and analytical chemistry and health disparities.

**Rebecca A. Meriwether**, MD, MPH, Adjunct Associate Professor, Associate Professor of Family and Preventive Medicine.

Research interests: Physical Activity, and the influence of built environment and policy on health.

**Daniela K. Natcheva**, Ph.D., Adjunct Assistant Professor, South Carolina Department of Health and Environmental Control

Research interests: environmental toxicology, quantitative risk assessment, hierarchical models, generalized linear models, branching processes.

**Gowtham Rao**, MD, PhD, MPH. Adjunct Assistant Professor, Chief Medical Information Officer at BlueCross BlueShield of South Carolina.

Research interests: Medication safety, Patient safety, Cancer outcomes, Comparative effectiveness research

**Richard M. Schulz**, Ph.D., Adjunct Professor; Professor, SC College of Pharmacy. (retired)

Research interests: pharmacoepidemiology, quality of life assessment, and patient adherence to pharmacotherapy.

**Nitin Shivappa**, Ph.D. Adjunct Assistant Professor

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

**James T Symanowski**, Ph.D., Adjunct Associate Professor. Chair, Department of Cancer Biostatistics, Levine Cancer Institute, Charlotte, NC.

**John E. Vena**, Ph.D., Adjunct Professor; Professor and Founding Chair, Department of Public Health Sciences, College of Medicine, Medical University of South Carolina.

Research interests: Environmental epidemiology including persistent environmental pollutants, air and water pollution, coastal environments; environmental justice; community -based research; cancer epidemiology; reproductive and developmental health; occupational epidemiology.

# 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 his/her 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 related to health and disease, and through the application of this knowledge to address current public health issues and problems. 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. Epidemiologist 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 in Public Health (M.S.P.H.)** degree is designed for those who wish to acquire skills necessary for public health research. The M.S.P.H. 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.P.H. 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.

## *Dual Ph.D. Program in Epidemiology and Environmental Health*

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 dual Ph.D. in Epidemiology and Environmental Health Sciences. To be admitted to this dual 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 dual degree program and apply for appropriate credit granted by both programs. Any student enrolled in the dual degree program must meet all academic requirements applicable at the time of enrollment to remain in the dual degree program. For more information about this dual degree program and its requirements, please see the Graduate Director in either department.



# 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:

- Copying another individual’s or group’s academic work.
- Receiving and utilizing academic work for purposes of fulfilling an academic requirement.
- Completing any academic work for someone else or permitting someone else to complete academic work on your behalf.

- Using any bribe or unauthorized aid (e.g., outside source, cell phone, calculator, notes, previous testing materials).

*Falsification:*

Misrepresenting or misleading others with respect to academic work. Prohibited behaviors include:

- Signing in for another student who is not in attendance or requesting this action.
- 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 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 USC Board of Trustees. The principles delineated in the Carolinian Creed articulate a vision of civility and positive inter-personal 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.

## **MASTER’S DEGREE PROGRAMS**

# ***Epidemiology MPH Degree Program***

## **Important Dates & Forms**

- **Within 30 days of first semester:** Out-of-state and international students must secure an assistantship or speak to Emily Tedesco about a department scholarship to be eligible for In-State tuition rate.
- **During 1<sup>st</sup> year**
  - Determine faculty advisor for your Epidemiology Applied Practice and discuss possible preceptor sites
  - meet with Zach Jenkins, Office of Public Health Practice to discuss practice site options
- **End of year 1**
  - Select preceptor site and field preceptor for Epidemiology Applied Practice.
- **Summer after year 1 (*can do practice now or during Fall or Spring semester in year 2*)**
  - Choose your competencies for the Epidemiology Applied Practice.
  - Complete Epidemiology Applied Practice Proposal
  - Choose your competencies for the Integrated Learning Experience
- **2<sup>nd</sup> Year, September**
  - Submit Program of Study (MPOS) form to Graduate Director for Approval
  - Any changes to the POS form must be submitted using the Request for Adjustment in Graduate Program form (GS-43 or POSA)
- **2<sup>nd</sup> year Spring**
  - Complete Integrated Learning Experience
  - **Within 15 days of last term before graduation:** Submit Graduation Application. E.g. to graduate in May Graduation Application needs to be turned in within 15 days of the beginning of Spring semester.

# 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/dissertation topic, public health practice, integrated learning experience, 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.

## *Advisement*

Students meet with their advisors 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 ([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 he/she 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. Grades 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 Department of Epidemiology and Biostatistics Graduate Program and disqualification for a graduate degree in Epidemiology or Biostatistics. A student with a lower than "B" grade on a single core course must retake the class prior to graduation. Retaking the course and receiving a grade of "B" or better does *not* replace the original grade on the student's record. The core courses for MPH epidemiology students are PUBH 725, EPID 741, and BIOS 757.

## *Annual Academic Review of M.P.H. 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. The Master's Student Annual Report (Appendix IV) will be evaluated by the student's academic

advisor and by the Department's Leadership Team, which includes the Department Chair, Division Directors, and Graduate Program Director. Third and higher year students will be sent an announcement/reminder of this requirement every fall. There are two parts to the evaluation and review: a part completed by the student and a part completed by the student's advisor. Students determined to be making unsatisfactory progress will receive a letter from the Department Chair, which provides steps necessary to improve progress towards degree.

## *Program of Study*

The "Program of Study" is a critical step to accomplish for each graduate student in the Department of Epidemiology and Biostatistics. The Program of Study lists all courses taken to fulfill degree requirements. The Program of Study is developed by the student and 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. In order to ensure you have included all required courses, please use the MPH Epidemiology Degree Requirements listed on page 34 as your guide. The Program of Study Form (MPOS) must be signed by the student, student's advisor and the Graduate Director and filed with The Graduate School no later than September of the student's second year. There is no foreign language requirement. Courses taken for undergraduate credit can never be on any master's program of study.

## *Progression Examination*

MPH Epidemiology students in the 2019-2020 cohort **are not required** to take a progression exam. NOTE: The Department of Epidemiology and Biostatistics may choose to reinstate this requirement for future MPH cohorts.

## *Comprehensive Assessment*

A Comprehensive Assessment is required by the University of South Carolina for all Master's students. An MPH Epidemiology student's final written product created during their Integrated Learning Experience (ILE) is used to satisfy the university's comprehensive assessment requirement. More information can be found on in the section entitled Integrated Learning Experience, which begins on page 42.

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

The maximum time to degree completion is 6 years for master's students. The Graduate School requires that the student's Program of Study not have any courses taken more than 6 years ago for Master's students. However, it is still possible to revalidate the courses that exceed these deadlines. The form (PRE-Permit for Revalidation Examination) is available on the Graduate School Forms Library website (<http://gradschool.sc.edu/DocLibrary>). 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.



# **Epidemiology MPH Degree Program**

## **Goals and Learning Outcomes**

The specific mission of the Master of Public Health (MPH) degree in epidemiology is to prepare students to apply epidemiologic skills in a practice setting.

Upon completion on the MPH degree program, students will be able to:

1. Describe the foundational public health knowledge competencies,
2. Demonstrate successful achievement of the MPH foundational competencies as defined by the Council on Education for Public Health (CEPH) (see Appendices I and II), and
3. Demonstrate successful achieve of the epidemiology specific competencies as defined by the Department of Epidemiology and Biostatistics (listed below).

### **Epidemiology Competencies (CEPH) or Learning Outcomes (SACS)**

1. Evaluate a public health surveillance system, identify salient gaps, and methods to address them.
2. Determine the appropriate study designs for a given public health problem and context.
3. Compare and contrast the strengths and limitations of epidemiologic study designs (randomized trials and observational studies), including biases and methods to minimize bias.
4. Formulate a research question and manage and analyze data from public health administrative or surveillance data, or electronic health data repositories.
5. Develop appropriate data collection protocols for a given public health issue and context.
6. Critically evaluate epidemiologic scientific literature.

# Degree Requirements for the M.P.H. in Epidemiology

## Summary of Degree Requirements for M.P.H. in Epidemiology

|                      |                |
|----------------------|----------------|
| SPH Core             | 16 hours       |
| Department Core      | 12 hours       |
| Major Courses        | 6 hours        |
| Electives            | 6 hours        |
| Applied Practice/ILE | <u>3 hours</u> |
| Total                | 43 hours       |

### School of Public Health Core (16 hours)

- PUBH 725 (5) Quantitative Methods for Public Health Practice
- PUBH 726 (3) Qualitative Methods for Public Health Practice
- PUBH 730 (3) Public Health Systems, Policy & Leadership
- PUBH 735 (4) Practical Applications of Public Health Planning
- PUBH 678 (1) Transforming Health Care for the Future

### Department Core (12 hours)

- BIOS 709 (1) SAS I
- BIOS 719 (1) SAS II
- BIOS 757 (3) Intermediate Biometrics
- EPID 741 (3) Intermediate Epidemiologic Methods
- EPID 721 (2) Clinical and Population Research Protocol Development and Implementation
- EPID 722 (2) Scientific Writing and Critical Review of Epidemiologic Literature

### Major Courses (6 hours)

- EPID 730 (3) Public Health Surveillance Systems
- EPID 758 (3) Application of Epidemiology in Public Health

### Electives (6 hours)

Electives may be chosen from epidemiology or other courses in the University that support the student's overall educational goals. The Faculty Advisor must approve all elective courses. Selected epidemiology courses are:

- EPID J661 (4) Parasitology
- EPID 744 (3) Cardiovascular Disease Epidemiology
- EPID 746 (3) Cancer Epidemiology
- EPID 747 (3) Environmental Epidemiology
- EPID 749 (3) Infectious Disease Epidemiology
- EPID 763 (3) Nutritional Epidemiology
- EPID 765 (3) Reproductive Epidemiology
- EPID 767 (3) GIS and Public Health Applications
- EPID 768 (3) Psychiatric Epidemiology
- EPID 770 (3) Social Epidemiology
- EPID 869 (3) Clinical Effectiveness

### Practice and ILE (3 hours)

- EPID 798 (2) Epidemiology Applied Practice (*approved for Fall 2020*)
- EPID 796 (1) Integrated Learning Experience (*pending Graduate Council approval*)

**NOTE: MPH degree program pending Graduate Council approval**

## MPH Epidemiology Course Sequence

| Course Number | Course Name  | Credit            | Sequence                                       |
|---------------|--|-------------------|--|
| <b>YEAR 1</b> |  |                   |  |
| PUBH 725      | Quantitative Methods for Public Health Practice                          | 5                 | Year 1 – Fall                                  |
| PUBH 726      | Qualitative Methods for Public Health Practice                           | 3                 | Year 1 - Fall                                  |
| BIOS 709      | Introduction to SAS  | 1                 | Year 1 - Fall                                  |
| EPID 721      | Clinical and Population Research Protocol Development and Implementation | 2                 | Year 1 - Fall                                  |
|               | <b>Total Credits Fall Year 1</b>   | <b>11</b>         |  |
| PUBH 735      | Practical Applications of Public Health Planning                         | 4                 | Year 1 - Spring                                |
| PUBH 730      | Public Health Systems, Policy, and Leadership                            | 3                 | Year 1 - Spring                                |
| EPID 741      | Intermediate Epidemiologic Methods                                       | 3                 | Year 1 - Spring                                |
| BIOS 757      | Intermediate Biometrics  | 3                 | Year 1 - Spring                                |
|               | <b>Total Credits Spring Year 1</b>                                       | <b>13</b>         |  |
| EPID 798      | Epidemiology Applied Practice  | 2                 | <b>Summer or<br/>Year 2<br/>Fall or Spring</b> |
| <b>YEAR 2</b> |  |                   |  |
| EPID 722      | Scientific Writing and Critical Review of Epidemiologic Literature       | 2                 | Year 2 – Fall                                  |
| EPID 730      | Public Health Surveillance   | 3                 | Year 2 – Fall                                  |
| EPID 788      | Practical Methods in Secondary Data Analysis                             | 3                 | Year 2 – Fall                                  |
| BIOS 719      | Advanced SAS   | 1                 | Year 2 - Fall                                  |
| Electives     | 2 courses, approved by advisor   | 6                 | Year 2 – Fall<br>and/or Spring                 |
|               |  |                   |  |
| EPID 796      | Integrated Learning Experience   | 1                 | Year 2- Spring                                 |
| PUBH 678      | Transforming Health Care for the Future                                  | 1                 | Year 2 - Spring                                |
|               |  |                   |  |
| <b>TOTAL</b>  |  | <b>43 credits</b> |  |

# Epidemiology Applied Practice (EPID 798)

The purpose of the applied practice is to provide students with opportunities to apply and test public health concepts, theories, and analytical tools learned in the classroom to real-world public health issues at a practice site. Students will have the opportunity to learn from public health professionals in any one of a variety of settings. Students will perform a limited work or service project as described in a practice proposal, which is developed by the student, faculty advisor, and field preceptor. The project will enable the student to demonstrate attainment of 5 competencies, which are described in the proposal.

## *Applied Practice Overview*

Students, faculty advisors, and field preceptors register through [MySPH](#). The contact person for MySPH is [Zach Jenkins](#), Office of Public Health Practice. Students, in consultation with their faculty advisor, select a practice site, project, and plan for the practice experience. The student must have an approved practice proposal prior to the start of their practice, after which the student begins fieldwork under the supervision of the field preceptor and faculty advisor. Students are expected to write and submit a detailed report of their practice experience and orally present at departmental or school-wide event.

## *Required Competencies*

All students are required to demonstrate competency in five competencies. Appendix III lists the three required foundational competencies followed by a list of seven competencies, from which each student must choose 2 additional competencies.

## *Setting, Requirements and Participant Roles*

### **Setting**

Numerous state and federal departments and agencies, as well as private hospitals, private organizations, and other health-related organizations, provide locations for practice experiences and projects.

### **Identify Faculty Advisor**

Each student is responsible for finding his/her own faculty advisor. The faculty advisor will generally be the student's academic advisor; however, students may ask another faculty member to serve in this capacity depending on the expertise required by the practice topic. The faculty advisor must be a current full-time tenure- or clinical-track EPID faculty member. The primary

factor in selecting an advisor should be the ability of the faculty member to assist in the development of the practice proposal and provide assistance throughout the practice field placement.

The faculty advisor is expected to:

- advise student in selecting practice experience competencies
- advise student regarding an Ethics Review if required of the practice project
- review practice proposal and any requested revisions
- approve the final proposal in MySPH Opportunity Manager
- communicate with the student and field preceptor throughout practice
- provide ongoing expert advice and guidance as needed or required
- assess competencies and assign grade at appropriate times
- attend final oral presentation by student
- review and evaluate the practice final report
- complete practice evaluation through MySPH Opportunity Manager

### **Practice Site and Field Preceptor**

Students, with assistance from their faculty advisor, are responsible for identifying and securing an applied practice site and field preceptor. A variety of strategies may be employed to assist students in this regard. Practice opportunities are posted in the MySPH Opportunity Manager (<http://mysph.sc.edu/>). Students may approach potential sites and/or field preceptors based on their interests or on increasing their exposure to areas beyond their interest and current expertise. The practice can be located outside of the Columbia area, outside of the state, or outside of the country.

The field preceptor is the practice site manager and student mentor, and he/she generally works in a public health agency or community health organization. The field preceptor should be qualified to supervise students' work and available to provide meaningful feedback on a daily or near daily basis. The individual must satisfy requirements described on the MySPH website, and he/she cannot be a USC faculty member. Specific information for the field preceptor is located in [MySPH](#).

The field preceptor is expected to:

- assist the faculty advisor and student to define short-term tasks of potential use to his or her organization
- review the student's practice proposal for usefulness to the organization
- determine limits of field preceptor's role with student
- electronically sign the practice proposal through MySPH Opportunity Manager
- provide on-site direction to the work component of the practice experience
- provide student logistical support (e.g., arranging space, equipment, use of phones, use of computer and/or computer software, secretarial help, making introductions, providing data or helping gain access to it, general advice, etc.) within the organization

- assist the faculty advisor with assessment of student's work upon completion of the applied practice
- attend the student's required final oral presentation if possible
- review and evaluate the practice experience final report
- complete practice evaluation through MySPH Opportunity Manager

## **Practice Proposal**

A completed, signed, and dated Epidemiology Applied Practice Proposal is necessary before a student can begin his/her fieldwork. Students are ultimately responsible for negotiating the proposal with both the field preceptor and their faculty advisor. This proposal is for the student's protection, as it will ensure that all parties agree upon the deliverables and experience within a pre-defined time frame. The proposal must explicitly identify the competencies to be addressed. The proposal should also define clear expectations for accomplishments in the practice experience. Contact information should be provided for all parties (i.e., student, field preceptor, and faculty advisor). Applied practices can be a variety of different projects or activities; however, all will have in common a clear epidemiologic component.

The applied practice proposal includes the following elements:

- Title page
- Introduction to the public health problem
- Problem statement and rationale; literature review
- Setting (description of the practice site)
- Five project-specific competencies
- Performance objectives including any deliverables
- timeline
- Bibliography

Students will begin fieldwork at the applied practice site and have primary contact with their field preceptor, who functions as a mentor. Students are expected to keep their faculty advisor updated as needed. If a problem arises, students are to inform their advisor as early as possible.

## **Written Report and Oral Presentation of Practice Experience**

Upon completion of the practice experience, students will be evaluated on a) a detailed written report of their practice experience and b) a formal presentation of this report at a departmental or school-wide event. Guidelines and grading rubrics for the written report and oral presentation are provided in the course syllabus. Students are to arrange the specifics of the presentation (e.g. presentation date, time and location) with their faculty advisor, field preceptor, and department program coordinator. The student may present in person or via video conferencing (e.g., Skype™). Students are encouraged to set the date for the presentation early in the semester by coordinating with both the faculty advisor and field preceptor. MPH students are responsible for notifying the department regarding presentations. The student should provide the following information via email to both the Program Coordinator Emily Tedesco ([tedescel@mailbox.sc.edu](mailto:tedescel@mailbox.sc.edu)) and Graduate Director Dr. Linda Hazlett ([ljhazlet@mailbox.sc.edu](mailto:ljhazlet@mailbox.sc.edu)):

- Epidemiology applied practice title
- Practice agency/location
- Your name
- Field preceptor
- Faculty advisor
- Date/time/location of oral presentation
- Semester/year of practice experience

Each student who successfully completes the applied practice must submit an electronic copy of the report to Emily Tedesco ([tedescel@mailbox.sc.edu](mailto:tedescel@mailbox.sc.edu)).

### **Ethics and Professional Standards**

The epidemiology applied practice is a professional position and one in which students are representatives of ASPH and UofSC. Students, therefore, are expected to conduct themselves and dress in a professional manner.

Professional conditions of confidentiality are to be honored according to prevailing practice of the practice site. In general, information received from an individual or organization belongs to that individual or organization, and recipients (i.e., students) are not free to pass along this information to other parties without the consent of the individual or organization.

UofSC does not require the IRB process and approval for applied practice work. However, some projects may need to be approved by the agency review committee at which the practice experience is conducted. Any necessary approvals must be obtained prior to beginning work on the defined practice tasks. Some practice activities related to an ongoing research project may be covered under that project's IRB approval. Such approval should be discussed with the project principal investigator and/or faculty advisor. In most situations, notification to the IRB of a change in protocol is sufficient.

### **Financial support**

If financial resources are required, the responsibility for negotiating these arrangements rests with the sponsoring agency and the student. These costs and responsibilities for coverage are included in the practice experience proposal.

### **Epidemiology Applied Practice Evaluation**

Three weeks prior to the practice end date, the faculty advisor, field preceptor and student will receive an email to complete the student's practice evaluation through MySPH. The evaluation is designed primarily to provide feedback on job performance and related issues to assist the Arnold School in monitoring practice and academic preparation for the MPH program.

## *Frequently Asked Questions*

### **How do I sign up for applied practice hours hours?**

You will register for EPID 798, 2 credits, during the semester you intend to complete your practice. You will need the 5-digit CRN code specific to your faculty advisor, which you can get from the department's program coordinator prior to registration. This CRN code must be listed on your advisement form before turning in to Graduate Student Services.

### **When can I do my epidemiology applied practice?**

The practice can be completed after taking the first year of course work, that is, summer after year 1 or fall or spring semester of year 2. You must have successfully completed PUBH 725, PUBH 726, PUBH 730, and PUBH 735 or have permission of the Graduate Director.

### **May I choose more than 5 competencies? May I choose competencies that aren't on the list provided?**

You may choose more than 2 additional competencies as part of your practice experience; however, you will only be evaluated on two competencies of your choice (be sure this is clearly indicated in your proposal). You cannot choose competencies that are not on the list provided. Exceptions may be granted on a case-by-case basis by the Graduate Director.

### **How many hours am I expected to work at the practice site?**

Students are expected to work 100 hours, including time to prepare the written report and oral presentation.

### **What will I be evaluated on?**

Upon completion of the applied practice, students will be evaluated on a) a detailed written report of their practice experience and b) a formal presentation of this report at a departmental or school-wide event. Students are encouraged to set the date for the presentation early in the semester by coordinating with both the Faculty Advisor and Field Preceptor.

### **Can I do my applied practice as part of my graduate assistantship?**

No. A student's applied practice cannot be part of their existing job or Graduate Assistantship (GA). *Exception can only be granted with the consent of your faculty advisor in consultation with the Graduate Director.*



### **Can I get paid for my practice experience?**

Students are not generally, but may be, remunerated for their practice experience placements or work.

### **Do you have tips for how I can be successful in my practice experience?**

Previous experience has indicated the following six elements are essential to a successful practice experience:

1. The student has competence/experience that indicates the potential for contributions to the organization, including knowledge gained in prerequisite courses.
2. The student and the advisor have carefully considered the 5 competencies which can be successfully met in the framework of the practice experience.
3. The student demonstrates an understanding of the practice experience proposal and deliverables
4. The student regularly seeks advice and mentoring from his/her field preceptor and faculty advisor.
5. A field preceptor is identified who wants a productive experience for both the organization and the student.
6. An organization wants a project accomplished, and it “owns” the work results.

# Integrated Learning Experience (EPID 796)

## *Overview*

The integrated learning experience course (EPID 796) is the culminating experience in the MPH program in which students demonstrate synthesis of MPH foundational and concentration competencies by addressing a public health problem. Students will produce a high-quality written product, examples of which may include the following: program evaluation report, training manual, policy statement, scientific manuscript, etc. Ideally, the written product is developed and delivered in a manner that is useful to external stakeholders, such as non-profit or governmental organizations.

Students, in consultation with the course instructor and their advisor or faculty mentor, may expand on a project done in a previous course including their Epidemiology Applied Practice (EPID 798). The written product should demonstrate synthesis of at least three foundational and concentration competencies appropriate for the student's educational and professional goals. If the integrated learning experience (ILE) is performed at the applied practice site, the student must demonstrate how the ILE project and the applied practice activities are distinct and how each will result in separate products and activities. The ILE is designed to be taken during the student's last semester.

Students will attend class during the semester where they will be provided with detailed information on proposal development along with constructive feedback from the instructor and classmates. Further information about the ILE can be found in the course syllabus.

## *Synthesis of Competencies*

Students are required to demonstrate synthesis of at least three MPH competencies, of which at least 1 must be a foundational competency and at least 1 must be an epidemiology specific competency. Students may choose to select more than 3 competencies as listed in their ILE proposal; however, students will only be evaluated on the 3 chosen competencies. One **foundational** competency is required for all MPH students.

*Required foundational competency #1 for all students:* Apply epidemiological methods to the breadth of settings and situations in public health practice.

*Additional two self-selected competencies:* Students must choose at least one competency from each group below:

### *Foundational Knowledge Competencies*

1. Analyze quantitative and qualitative data using biostatistics, informatics, computer-based programming and software, as appropriate.
2. Interpret results of data analysis for public health research, policy or practice.
3. Assess population needs, assets, and capacities that affect communities' health.
4. Design a population-based policy, program, project or intervention.
5. Select methods to evaluate public health programs.

6. Advocate for political, social or economic policies and programs that will improve health in diverse populations.
7. Apply systems thinking tools to a public health issue.
8. Communicate audience-appropriate public health content, both in writing and through oral presentation.

#### *Epidemiology Competencies*

1. Evaluate a public health surveillance system, identifying salient gaps, and methods to address them.
2. Determine the appropriate study design for a given public health problem and content.
3. Develop appropriate data collection protocols for a given public health issue and context.

### **ILE Written Proposal**

The ILE proposal will provide opportunities to learn and improve writing skills. The ILE proposal should include the following sections:

1. Name of Faculty advisor/mentor
2. Project title
3. Summary/Abstract
4. Purpose
5. Significance and relevance to public health
6. Competencies to be addressed
7. Rationale/justification for how the project meets the chosen competencies
8. Description/aims
9. Methods to be utilized
10. Deliverables and outcomes
11. Timeline

Specifics about the proposal (length, font, margins, number of pages, grading rubric, etc.) are provided in the course syllabus.

### **ILE Final Written Product**

The final, high-quality written product can take one of several forms including, but not limited to:

1. Program evaluation report
2. Policy statement
3. Surveillance report
4. Manuscript for peer-reviewed journal

Students wishing to develop a different product must have instructor approval. For options 1-3, the course instructor along with the student's academic advisor will guide the student in drafting and writing the reports or statements. For option 4, the course instructor and an epidemiology faculty member with content area expertise will guide the student through the development of a

manuscript. Specifics about the final product (length, font, margins, number of pages, grading rubric, etc.) are provided in the course syllabus.

## *Frequently Asked Questions*

### **Who will be my faculty advisor for my integrated learning experience?**

You have a couple of options available to you. You may ask your academic advisor or your practice faculty advisor to advise you for ILE. You can also ask another EPID faculty member who has expertise in your area of interest to advise you for your ILE. The faculty member must be a full-time tenure- or clinical-track epidemiology faculty member.

### **When should I begin working on my ILE?**

We suggest you begin thinking about your ILE during year 1. This enables you in fall semester of year 2 to find your faculty advisor, choose a topic, consider your competencies, and begin work on your proposal before you begin the spring semester.

### **Will I be given a topic or list of topics to choose from or do I need to come up with something entirely on my own?**

The ILE is your project. You can come up with your own idea and discuss it with your faculty advisor and course instructor. If you are struggling to come up with a topic, your advisor and course instructor can talk with you about your interests to guide you in your topic selection.

# *Epidemiology MSPH Degree Program*

## **Important Dates & Forms**

### **1<sup>st</sup> year milestones**

- To be eligible for In-State tuition rate, out-of-state and international students must secure an assistantship no later than 30 days into the semester or speak to Emily Tedesco about a small scholarship
- Progression Exam – Friday of the first full week after spring commencement
  - Progression Re-take (if necessary) – Friday before the first day of Fall semester

### **2<sup>nd</sup> year milestones**

- Submit Program of Study (MPOS) form no later than September of second year to Graduate Director for Approval
  - Any changes to the POS form should be submitted using the Request for Adjustment in Graduate Program form (GS-43 or POSA)
- Submit Master's Committee Appointment Form (department form) to the Graduate Director for approval
- Thesis Proposal - Suggest proposing in Fall of second year; however, must be at least *three months prior* to the thesis defense. After successful completion of proposal, submit the Master's Thesis Proposal Form (department form) to the Graduate Director.
- Graduation Application – submitted no later than 15 days after the *beginning* of the term in which graduation is expected.
- Thesis Format Check - submitted to the Graduate School well in advance of your thesis defense to allow the Graduate School time to check your thesis.
- First Draft of Thesis – submitted to the Thesis Committee at least one month before the thesis defense, or earlier if specified by the committee.
- Thesis Defense and Format Check Deadline - at least one week prior to final thesis submission. You must let Emily Tedesco know to post an announcement 1 week prior to defense including on the Graduate School website.
- Final Thesis – submitted electronically to the Graduate School at least 20 days before the date of graduation.

- A hard copy of the Master's Thesis Signature Form, *with original signatures*, must be submitted to your Graduate Director for signature after the defense. The signed form gets sent to the Graduate School. If you are requesting a publication embargo, attach a letter to the Thesis Signature Form, signed by your thesis chair and the Graduate Director.

## 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, 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.

### *Advisement*

Students meet with their advisors 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 ([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 he/she 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. Grades 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 Department of Epidemiology and Biostatistics Graduate Program and disqualification for a graduate degree in Epidemiology or Biostatistics. A student with a lower than "B" grade on a single core course must retake the class prior to graduation. Retaking the course and receiving a grade of "B" or better does *not* replace the original grade on the student's record. The core courses for MSPH epidemiology students are EPID 701, BIOS 701, BIOS 757, and EPID 741.

### *Annual Academic Review of M.S.P.H. 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. The Master's Student Annual Report (Appendix IV) will be evaluated by the Department's

Leadership Team, which includes the Department Chair, Division Directors, and Graduate Program Director. Third and higher year students will be sent an announcement/reminder of this requirement every fall. There are two parts to the evaluation and review: a part completed by the student and a part completed by the student's advisor. Students determined to be making unsatisfactory progress will receive a letter from the Department Chair, which provides steps necessary to improve progress towards degree.

## *Program of Study*

The "Program of Study" is a critical step to accomplish for each graduate student in the Department of Epidemiology and Biostatistics. The Program of Study lists all courses taken to fulfill degree requirements. The Program of Study is developed by the student and 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. In order to ensure you have included all required courses, please use the MSPH Epidemiology Degree Requirements listed on page 51 as your guide. The Program of Study Form (MPOS) must be signed by the student, student's advisor and the Graduate Director and filed with The Graduate School no later than September of the student's second year. There is no foreign language requirement. Courses taken for undergraduate credit can never be on any master's program of study.

## *Progression Examination*

The Progression Examination will be offered after the end of each spring semester on the Friday of the first full week after commencement. Students will be tested on material from BIOS 701, EPID 701, EPID 741 and BIOS 757. If a student completing the department core courses in the spring semester does **not** take the exam, it will count as a failed first attempt unless she/he has made prior arrangements with the Graduate Director due to emergency circumstances.

After obtaining advisor's approval, students must register with the Program Coordinator to take the Progression Examination. Registration is open from one month prior to one week prior to the exam. If a student registers to take the Progression Examination and does not take it, this will count as one attempt unless the registration is canceled at least one week prior to the examination date or prior arrangements with the Graduate Director have been made.

Students must earn at least a "B" in EPID 701 and BIOS 701 to progress to EPID 741 and BIOS 757, respectively. A grade of "B" or better in EPID 741 or BIOS 757 is **not** required to take the progression exam.

The Progression Examination is prepared by the Division of Epidemiology's Exam Committee, and the exam is administered in a classroom setting. The exam will be closed book; however, students will be provided with a formula sheet of the standard formulas which may be needed for the exam content. Students may use a calculator but electronic devices (including laptops, cell phones, etc.) are not allowed at any time during the exam.

At least two faculty members will grade each question blinded and independently. Students taking



the Progression Examination will be notified in writing of the results (pass/fail) 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. A debriefing session will be held after examination results are released to students. A student also may meet with his or her academic advisor to discuss performance on the exam. The student can see his/her ungraded exam, and the academic advisor will discuss areas of strengths/ weaknesses with the student after viewing the graded exams. Students will not have access to their graded exams.

If a student does not pass the Progression Examination during the spring administration, he or she will be allowed to take a second exam in August the Friday before fall semester classes begin. A student who must repeat the Progression Examination may take one or more courses (with the exception of thesis) during the Summer sessions 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 be the entire exam, or a portion of the exam, at the discretion of the Examination Committee and the appropriate Graduate Director. If a student does not pass the Progression Examination on the second attempt, he or she will not be allowed to continue in the program.

## *Comprehensive Assessment*

A Comprehensive Assessment is required by the University of South Carolina for all Master's students. A MSPH Epidemiology student's thesis proposal defense will satisfy the university's requirements for a comprehensive assessment. More information on the thesis proposal can be found in the Thesis Section beginning on page 53. The grading rubric is available in Appendix V.

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

The maximum time to degree completion is 6 years for master's students. The Graduate School requires that the student's Program of Study not have any courses taken more than 6 years ago for Master's students. However, it is still possible to revalidate the courses that exceed these deadlines. The form (PRE-Permit for Revalidation Examination) is available on the Graduate School Forms Library website (<http://gradschool.sc.edu/DocLibrary>). 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

# **CEPH Competencies and Learning Outcomes for the M.S.P.H. in Epidemiology**

The purpose of the Master of Science in Public Health (MSPH) degree in Epidemiology is to prepare students for involvement in epidemiologic research that addresses the distribution and determinants of disease and other health-related conditions and behaviors.

The epidemiology competencies (CEPH) or learning outcomes (SACS) are:

1. Formulate research questions and develop evidence-based hypotheses that are testable with quantitative data.
2. Develop protocols for primary data collection and for documentation of secondary data analyses.
3. Synthesize and critically evaluate public health literature.
4. Choose and apply appropriate quantitative analysis methods to answer a specific research question using a public health dataset.
5. Communicate epidemiological findings effectively in oral and written formats.
6. Demonstrate proficiency in at least one software package (SAS, R, etc.) to manage a public health dataset.
7. Demonstrate proficiency in quantitative analysis of health disparities and health inequities.

# Degree Requirements for the M.S.P.H. in Epidemiology

## Summary of Degree Requirements for M.S.P.H. in Epidemiology

|                 |                |
|-----------------|----------------|
| SPH Core        | 3 hours        |
| Department Core | 22 hours       |
| Major Courses   | 9 hours        |
| Electives       | 3 hours        |
| Thesis          | <u>6 hours</u> |
| Total           | 43 hours       |

## School of Public Health Core (3 hours)

|              |                               |
|--------------|-------------------------------|
| PUBH 700 (3) | Perspectives in Public Health |
|--------------|-------------------------------|

## Department Core (22 hours)

|              |  |
|--------------|--|
| BIOS 701 (3) | Concepts and Methods of Biostatistics                                    |
| EPID 701 (3) | Concepts and Methods of Epidemiology                                     |
| EPID 741 (3) | Intermediate Epidemiologic Methods                                       |
| BIOS 757 (3) | Intermediate Biometrics  |
| BIOS 754 (3) | Discrete Data Analysis   |
| BIOS 709 (1) | Introduction to SAS  |
| BIOS 714 (1) | Data Management for Public Health  |
| BIOS 719 (1) | Advanced SAS   |
| EPID 721 (2) | Clinical and Population Research Protocol Development and Implementation |
| EPID 722 (2) | Scientific Writing and Critical Review of Epidemiologic Literature       |

## Major Courses (9 hours)

|              |  |
|--------------|--|
| EPID 788 (3) | Practical Methods in Secondary Data Analysis |
|--------------|--|

### Plus any two of the following:

|               |                                     |
|---------------|-------------------------------------|
| EPID J661 (4) | Parasitology                        |
| EPID 730 (3)  | Public Health Surveillance Systems  |
| EPID 744 (3)  | Cardiovascular Disease Epidemiology |
| EPID 746 (3)  | Cancer Epidemiology                 |
| EPID 747 (3)  | Environmental Epidemiology          |
| EPID 749 (3)  | Infectious Disease Epidemiology     |
| EPID 763 (3)  | Nutritional Epidemiology            |
| EPID 765 (3)  | Reproductive Epidemiology           |
| EPID 767 (3)  | GIS and Public Health Applications  |
| EPID 768 (3)  | Psychiatric Epidemiology            |
| EPID 770 (3)  | Social Epidemiology                 |
| EPID 790 (3)  | Independent Study                   |
| EPID 794 (3)  | Special Topics in Epidemiology      |
| EPID 869 (3)  | Clinical Effectiveness              |

## Electives (3 hours)

Electives are chosen from courses in the University that support the overall educational goals of the student. The Faculty Advisor must approve all elective courses. Typically, the elective course is chosen from the list above, in addition to the two major courses.

## Thesis (6 hours)

|              |                    |
|--------------|--------------------|
| EPID 799 (6) | Thesis Preparation |
|--------------|--------------------|

## MSPH Epidemiology Course Sequence

| Course Number                   | Course Name  | Credit            | Sequence                 |
|---------------------------------|--|-------------------|--------------------------|
| EPID 701                        | Concepts and Methods of Epidemiology   | 3                 | Year 1 – Fall            |
| BIOS 701                        | Concepts and Methods of Biostatistics  | 3                 | Year 1 - Fall            |
| BIOS 709                        | Introduction to SAS  | 1                 | Year 1 - Fall            |
| EPID 721                        | Clinical and Population Research Protocol Development and Implementation   | 2                 | Year 1 - Fall            |
| BIOS 714                        | Data Management for Public Health  | 1                 | Year 1 - Fall            |
|                                 |  |                   |                          |
| EPID 741                        | Intermediate Epidemiologic Methods   | 3                 | Year 1 - Spring          |
| BIOS 757                        | Intermediate Biometrics  | 3                 | Year 1 - Spring          |
| EPID Major Courses and Elective | 2 EPID content courses (6 credits) and 1 Elective (3 credits)  | 9                 | Year 1 or 2              |
|                                 |  |                   |                          |
| PUBH 700 (3) and EPID 799 (1)   | Online class – suggest taking over summer. Can also begin work on thesis after successful completion of progression exam | 3 and 1           | Year 1 - Summer          |
|                                 |  |                   |                          |
| EPID 722                        | Scientific Writing and Critical Review of Epidemiologic Literature   | 2                 | Year 2 – Fall            |
| BIOS 754                        | Discrete Data Analysis   | 3                 | Year 2 – Fall            |
| EPID 788                        | Practical Methods in Secondary Data Analysis   | 3                 | Year 2 – Fall            |
| BIOS 719                        | Advanced SAS   | 1                 | Year 2 - Fall            |
| EPID 799                        | Thesis – continue taking hours, suggest 2 this semester  | 2                 | Year 2 – Fall and Spring |
|                                 |  |                   |                          |
| EPID 799                        | Thesis – continue taking hours If graduating in May, take remaining 3; otherwise, take 1 or 2.                           | 3                 | Year 2 – Spring          |
| <b>TOTAL</b>                    |  | <b>43 credits</b> |                          |

# **MSPH Epidemiology Master's Thesis**

## *Purpose of the Master's Thesis*

All MSPH 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 epidemiologic research. At the end of the thesis, the student should be able to demonstrate the ability to:

- Develop a testable research question of public health significance;
- Review the current literature as context for the research question;
- Describe the research design and analytic strategy;
- Conduct analyses appropriate for the research question;
- Clearly present the results;
- Draw appropriate inferences based on the results;
- Discuss the findings in context of current knowledge and implications for public health and future research.

## *Thesis Committee*

Students must pass the progression examination before forming the Thesis Committee and beginning thesis work. The student, in consultation with the Academic Advisor, will select a Thesis Director from the epidemiology division faculty. The selection of the Thesis Director should reflect the student's area of research interest. The Thesis Director is primarily responsible for advising and mentoring the student throughout the thesis. The Thesis Director 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 he or she would be willing to serve. The committee will generally consist of three members, including the Thesis Director 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 Director's discretion with the Graduate Director's approval. Once the committee members are finalized, the student completes a Master's Thesis Committee Appointment Form (see appendix) and submits it to Graduate Director for approval.

## *Registering for Thesis Hours*

Students can register for thesis credit hours (EPID 799) only if a) approved by the Thesis Director and b) actively working on the thesis. A total of 6 thesis credit hours are required for graduation. If a student completes the requisite 6 thesis credit hours and has not defended and submitted the thesis, the student must register for at least one thesis credit hour each semester he or she is working on the thesis until graduation.

## *Human Subjects Approvals*

In consultation with the Thesis Director, 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 advisor. In most situations, notification of the IRB or IRB liaison of a change in protocol is sufficient.

## *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, and methodology that the student intends to use for the thesis. In many cases, this forms the basis of the first three chapters of the final thesis. The proposal approval form must be submitted to the Graduate Director. The presentation of the proposal should be no less than 3 months prior to the thesis defense.
- b. A couple of months 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. You can view the format guide, ETD samples, and templates and submit your document at the Thesis & Dissertation portal. The Graduate School holds ETD workshops every semester. Students are responsible for making sure the thesis meets the Graduate Schools' requirement (<http://gradschool.sc.edu/students/thesisdiss.asp>).
- c. **A first draft of the final thesis should be submitted to the Thesis Committee at least 1 month before the thesis defense or earlier if specified by the committee. (see timetable)**
- d. **The final draft is to be submitted to each committee member at least 30 days prior to the end of the semester (see time table for approximate dates) or at least two weeks prior to the thesis defense, whichever is earlier.**
- e. 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.

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 will take questions from the audience. After questions have been asked and answered, the Thesis Director will dismiss the audience, and the candidate and his/her committee will remain for the oral exam portion of the defense. 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) pass; 2) conditional pass, with certain required changes needing to be made within a specified time frame; 3) fail.

Once the student has successfully passed the thesis defense, all Thesis Committee members must approve the final version and provide original signatures on the Thesis Signature and Approval (TSF) form (<http://gradschool.sc.edu/forms/G-TSF.pdf>). The hard copy of the signed form, *with original signatures*, is submitted to the Graduate School. Multiple copies of this form can be used for those committee members who are out of the country provided all completed forms are returned to the Graduate School with original signatures (if you have questions, see your Graduate Director). If the student, with committee approval, should wish to publish a manuscript from his/her thesis, a letter requesting delayed release (embargo) of dissemination must accompany the TSF, signed by the student's thesis advisor and Graduate Director. Epidemiology master's students typically request a one-year embargo. The embargo letter must be signed by the student's thesis advisor and the Graduate Director or it will be returned by the Graduate School.

- f. 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.
- g. Specified deadlines may be shortened if approved by the Graduate Director.

### Approximate Thesis Milestone Deadlines for Graduation in May, August, or December:

| Task  | For graduation in   |  |  |
|---|---|--|--|
|   | May   | August   | December   |
| Suggested thesis proposal defense (must be at least 3 months prior to thesis defense)                     | Late fall or Early January  | Mid to Late March  | Early August   |
| First complete version to committee – plan to give your committee at least 3 weeks prior to final defense | Early March   | Early June   | Early October  |
| Latest suggested defense date – don’t 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 Graduate School calendar for 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 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, working as a graduate research assistant.
- Should I collect my own data for the master’s thesis?**  
 No! Master’s students are not expected to undertake their own original research because it may be difficult to complete original research within the time frame of a master’s program. Students are strongly encouraged to use data already available.
- How can I find a dataset to analyze for my master’s thesis?**  
 There are a several publicly available datasets (e.g. BRFSS, NHANES, and NHIS). Additionally, students may be granted access to a faculty members research data. However, written permission from whoever controls that dataset, and necessary IRB approval must be obtained.
- What are the roles of the thesis committee members?**  
 The Thesis Director 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 to troubleshoot issues and in developing high quality thesis drafts. The other committee members may advise on the designing the project, analysis of data, and interpreting the results. These members may also provide comments, lend expertise on the development of your thesis, and reviews drafts.

- **What are acceptable research studies for an epidemiology thesis?**

There are several acceptable types of research that are acceptable for the epidemiology thesis. The most common research approach is a study of determinants of disease, i.e., testing one or more hypotheses about the relationship between an exposure(s) and a health-related outcomes(s). Other acceptable formats include validation of a measurement or screening test, and a formal systematic review or meta-analysis.

- **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 speaks to the quality of your thesis research and will open doors in the public health practice and research settings. You are encouraged to discuss this issue with your Thesis Director.

- **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 these theses using the library website: <http://library.sc.edu/webdiss.html>. Click on CurrentResearch@USC.

- **Does the department require a specific reference style?**

No. Students may choose from any number of reference styles, provided their thesis advisor approves the choice. Typical reference styles include but are not limited to APA, AMA, Chicago, Vancouver, MLA, and Harvard.

# ***Biostatistics MSPH Degree Program***

## **Important Dates & Forms**

### **1<sup>st</sup> year milestones**

- To be eligible for In-State tuition rate, out-of-state and international students must secure an assistantship no later than 30 days into the semester or speak to Emily Tedesco about a small scholarship
- Progression Exam – Friday of the first full week after spring commencement
  - Progression Re-take (if necessary) – Friday before the first day of Fall semester

### **2<sup>nd</sup> year milestones**

- Submit Program of Study (MPOS) form no later than September of second year to Graduate Director for Approval
  - Any changes to the POS form should be submitted using the Request for Adjustment in Graduate Program form (GS-43 or POSA)
- Submit Master's Committee Appointment Form (department form) to the Graduate Director for approval
- Thesis Proposal - Suggest proposing in Fall of second year; however, must be at least *three months prior* to the thesis defense. After successful completion of proposal, submit the Master's Thesis Proposal Form (department form) to the Graduate Director.
- Graduation Application – submitted no later than 15 days after the *beginning* of the term in which graduation is expected.
- Thesis Format Check - submitted to the Graduate School well in advance of your thesis defense to allow the Graduate School time to check your thesis.
- First Draft of Thesis – submitted to the Thesis Committee at least 2 weeks before the defense (6 weeks before the date of graduation), or earlier if specified by the committee.
- Thesis Defense and Format Check Deadline - at least one week prior to final thesis submission (4 weeks before the date of graduation). You must let Emily Tedesco know to post an announcement 1 week prior to defense including on the Graduate School website.
- Final Thesis – submitted electronically to the Graduate School at least 20 days before the date of graduation.

- A hard copy of the Master's Thesis Signature Form, with original signatures, must be submitted to your Graduate Director for signature after the defense. The signed form gets sent to the Graduate School. If you are requesting a publication embargo, attach a letter to the Thesis Signature Form, signed by your thesis chair and the Graduate Director.

## 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.

### *Advisement*

Students meet with their advisors 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 he/she 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 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 Department of Epidemiology and Biostatistics Graduate Program and disqualification for a graduate degree in Epidemiology or Biostatistics. A student with a 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. The core courses for MSPH biostatistics students are: BIOS 701, BIOS 710, BIOS 757, BIOS 758, and EPID 701.

### *Annual Academic Review of M.S.P.H. 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. The

academic progress report will be evaluated by the Department's Leadership Team, which includes the Department Chair, Division Directors, and Graduate Program Director. 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 advisor. Students determined to be making unsatisfactory progress will receive a letter from the Department Chair, which provides steps necessary to improve progress towards degree.

## *Program of Study*

The "Program of Study" is a critical step to accomplish for each graduate student in the Department of Epidemiology and Biostatistics. The Program of Study lists all courses taken to fulfill degree requirements. The Program of Study is developed by the student and 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. In order to ensure you have included all required courses, please use the MSPH Biostatistics Degree Requirements listed on page 68 as your guide. The Program of Study Form (MPOS) must be signed by the student, student's advisor and the Graduate Director and filed with The Graduate School no later than September of the student's second year. There is no foreign language requirement. Courses taken for undergraduate credit can never be on any master's program of study.

## *Transfer Credits*

The Program of Study may include graduate credits transferred from another USC 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 USC, 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 Epidemiology and Biostatistics.**

## *Departmental Core Courses*

Core courses vary by degree. For Biostatistics MSPH students, the core classes are:

- 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

## *Examinations (Progression and Comprehensive)*

In addition to the coursework, each student must pass two examinations, the Progression Examination and the Comprehensive Examination. At the end of the spring semester during which the departmental core courses are completed, each student must take the Progression Examination. This exam must be passed before continuation in the program and before registering for thesis hours. At or near completion of required departmental coursework (i.e., on program of study), each student must satisfactorily complete a Comprehensive Exam, which is normally given the third Friday of the spring semester.

### *Progression Examination*

The Progression Examination will be taken when students complete the department core courses. Biostatistics students will be tested on material from BIOS 701, BIOS 757, BIOS 758, EPID 701 and STAT 512 (Mathematical Statistics). The Progression Examination will be offered after the end of each spring semester on the Friday of the first full week after commencement. If a student completing the department core courses in the spring semester does not take the exam, it will count as a failed first attempt unless she/he has made prior arrangements with the Graduate Director due to emergency circumstances.

After obtaining advisor's approval, students must register with the Program Coordinator to take the Progression Examination. Registration is open from one month prior to one week prior to the exam. If a student registers to take the Progression Examination and does not take it, this will count as one attempt unless the registration is canceled at least one week prior to the examination date or prior arrangements with the Graduate Director have been made.

Biostatistics students must earn at least a "B" in BIOS 701 and EPID 701 to progress to BIOS 757 & BIOS 758. A grade of "B" or better in EPID 741 or BIOS 757 (& BIOS 758 for BIOS Majors) is not required to take the progression exam. Students who earn below a "B" on any core course must retake that course prior to graduation regardless of performance on the Progression Exam. Receiving lower than a "B" grade in six (6) or more graduate credit hours in the Department's core courses results in the dismissal of the student from the Department of Epidemiology and

Biostatistics Graduate Program and disqualification for a graduate degree in Epidemiology or Biostatistics.

The Progression Examination for biostatistics is prepared by the Division of Biostatistics' Exam Committee. At least two faculty members will grade each question blinded and independently.

The Progression Examination will be given 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.) except for basic calculators are forbidden.

Students taking the Progression Examination will be notified in writing of the results (pass/fail) 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. A debriefing session will be held after examination results are released to students. A student also may meet with his or her academic advisor to discuss performance on the exam.

If a student does not pass the Progression Examination during the spring administration, he or she will be allowed to take a second exam in August the Friday before fall semester classes begin. A student who must repeat the Progression Examination may take one or more courses (with the exception of thesis) during the Summer sessions 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 be the entire exam, or a portion of the exam, at the discretion of the Examination Committee and the appropriate Graduate Director. If a student does not pass the Progression Examination on the second attempt, he or she will not be allowed to continue in the program.

Biostatistics students have the opportunity to be exempted from the Progression Examination. 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 C's or below upon completing the following first-year courses: BIOS 701, EPID 701, BIOS 757, BIOS 758, STAT 512, BIOS 709, BIOS 711 & BIOS 712 and 2) a B+ or better course grade in both BIOS 757 & BIOS 758.

## *Comprehensive Examination*

A Comprehensive Assessment, required by the University for all Master's students, is in the form of a comprehensive examination. 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. The comprehensive exam must be within two years of your graduation or you must retake the comprehensive exam.

The Comprehensive Examination is normally offered on the third Friday of each spring semester. This will in most instances be taken upon completion of the majority 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. All students should be ready to begin or be currently working on a thesis when taking the Comprehensive Examination.

After obtaining advisor's approval, students must register with the Program Coordinator (currently LaToya Reese) to take the Comprehensive Examination. Registration is open from one month prior to one week prior to the exam. If a student registers to take the Comprehensive Examination and does not take it, this will count as one attempt unless the registration is canceled at least one week prior to the examination date.

The Comprehensive Examination is distinct for Epidemiology students and Biostatistics students. The exams are prepared by the Exam Committees of the Division of Epidemiology and the Division of Biostatistics, respectively, with assistance from other faculty in that discipline. The committee evaluates the results and determines the outcome. The Comprehensive Examination will be evaluated as a whole; the student will either pass or not pass the entire Examination.

The examination will focus on the theory and methods presented in the various Biostatistics and Statistics courses, possibly including more advanced concepts from BIOS 701, BIOS 757, BIOS 758, STAT 512 as well as material from BIOS 759, BIOS 761, and STAT 513. Students will be given a set of questions based on material from these courses. Each question will be aimed at evaluating the knowledge on a specific topic as presented in any of the core and major courses. Biostatistics students will complete the examination using pen/pencil and paper. Students will be allowed to use a calculator but not any statistical software. They will be given a sheet of standard formulas, as in the Progression Exam.

Students taking the Examination will be notified of the results in writing 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. A debriefing session will be held after examination results are released to students. The student also may meet with his or her advisor to discuss performance on the exam.

Each student is allowed two attempts at the Comprehensive Examination. If the second attempt is required, it should occur at the next administration of the exam, which will be after the end of the spring semester on the Friday of the first full week after commencement. Because the student has essentially completed his or her program of study, he or she may take additional elective courses during this time. If a student does not pass the examination on the second attempt, he or she is not allowed to continue in the program.

### **Examination Schedule**

|                       | <b>2020</b> | <b>2021</b> | <b>2022</b> |
|-----------------------|-------------|-------------|-------------|
| Progression*          | 15-May      | 14-May      | 13-May      |
| Progression retake †  | 14-Aug      | 12-Aug      | 11-Aug      |
| Comprehensive ‡       | 31-Jan      | 29-Jan      | 28-Jan      |
| Comprehensive retake* | 15 – May    | 14-May      | 13-May      |

\* Friday of the first full week after Spring commencement

† Friday before the first day of Fall semester

‡ Third Friday of Spring semester



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

The maximum time to degree completion is 6 years for master's students. The Graduate School requires that the student's Program of Study not have any courses taken more than 6 years ago for Master's students. However, it is still possible to revalidate the courses that exceed these deadlines. The form (PRE-Permit for Revalidation Examination) is available on the Graduate School Forms Library website (<http://gradschool.sc.edu/DocLibrary>). 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

# Goals and Learning Outcomes of the M.S.P.H. in Biostatistics

The purpose of the Master of Science in Public Health (MSPH) 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.

MSPH 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 (e.g., t-test, contingency table, correlation) 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, including multivariable methods for continuous and categorical data analysis.

## Goal #2.

MSPH 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 useable 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.

MSPH 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.

**Goal #4.**

MSPH program graduates will demonstrate an overall mastery of the core concepts of public health.

- Learning outcome #1: Students will demonstrate an understanding of current public health practice and how various health-related disciplines contribute to achieving public health goals.

# Degree Requirements for the M.S.P.H. in Biostatistics

A minimum of 45 credit hours is required for the Master of Science in Public Health with a major 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. All department core courses must be passed with a grade of “B” or better. Failure to do so will necessitate repeating the course; these courses can only be repeated once. Course requirements are below.

## Summary of Degree Requirements for M.S.P.H. 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 in 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 780 (3) Quantile Regression  
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 MSPH BIOS Students

### *MSPH*

| Semester             | 1            | 2            |        | 3            | 4            |
|----------------------|--------------|--------------|--------|--------------|--------------|
|                      | Fall         | Spring       | Summer | Fall         | Spring       |
|                      |              |              |        |              |              |
| <b>PUBH 700 (3)</b>  | PUBH 700 (3) |              |        |              |              |
|                      |              |              |        |              |              |
| <b>DEPT</b>          | EPID 701 (3) | BIOS 757 (3) |        |              |              |
| <b>CORE</b>          | BIOS 701 (3) | BIOS 758 (3) |        |              |              |
| <b>(18)</b>          | BIOS 709 (1) | BIOS 712 (1) |        |              |              |
|                      | BIOS 711 (1) |              |        |              |              |
|                      | BIOS 745 (1) |              |        |              |              |
| <b>MAJOR</b>         |              |              |        | BIOS 759 (3) | BIOS 770 (3) |
| <b>COURSES</b>       |              | STAT 512 (3) |        | BIOS 761 (3) | BIOS 746 (1) |
| <b>(15)</b>          |              |              |        | STAT 513(3)  |              |
|                      |              |              |        |              |              |
| <b>ELECTIVES (3)</b> |              |              |        |              | ELECTIVE (3) |
|                      |              |              |        |              |              |
| <b>THESIS (6)</b>    |              |              |        | BIOS 799 (1) | BIOS 799 (5) |
|                      |              |              |        |              |              |
| <b>Credits (45)</b>  | 12           | 10           |        | 10           | 12           |

STAT 512 is also offered in the first summer session, so students could take it then. Many times, students like to take thesis hour(s) in the fall of their second year.

# **MSPH Biostatistics Master's Thesis**

## *Purpose of the Master's Thesis*

All MSPH 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 epidemiologic/biostatistical research. At the end 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 and the focus of the thesis;
- Conduct analyses to illustrate the technique or statistical issue;
- Clearly present 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 the Academic Advisor, will select a Thesis Director from the departmental faculty. The selection of the Thesis Director should reflect the student's area of research interest. The Thesis Director is primarily responsible for advising and mentoring the student throughout the thesis. The Thesis Director 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 he or she would be willing to serve. The committee will consist of a minimum of three members, including the Thesis Director 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 Director's discretion. Once the committee members are finalized, the student completes a Master's Thesis Committee Appointment Form (see appendix) and submits it to Graduate Director for approval.

## *Registering for Thesis Hours*

Students can register for thesis credit hours (EPID 799) only if approved by the Thesis Director and actively working on the thesis. A total of 6 thesis credit hours are required for graduation.

If a student completes the requisite 6 thesis credit hours and has not defended and submitted the

thesis, the student must register for at least one thesis credit hour each semester he or she is working on the thesis.

## *Human Subjects Approvals*

In consultation with the Thesis Director, 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 advisor. In most situations, notification of the IRB or IRB liaison of a change in protocol is sufficient.

## *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, and methodology that the student intends to use for the thesis. In many cases, this forms the basis of the first three chapters of the final thesis. The proposal approval form must be submitted to the Graduate Director (see appendix). The presentation of the proposal should be no less than 3 months prior to the thesis defense.
- b. A First Draft of Thesis should be submitted to the Thesis Committee at least 2 weeks before the defense (6 weeks before the date of graduation), or earlier if specified by the committee.
- c. The final copy is to be submitted to each committee member at least 30 days prior to the end of the semester (see time table for approximate dates) or at least two weeks prior to the thesis defense, whichever is earlier.
- 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.

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. You can view the format guide, ETD samples, and templates and submit your document at the Thesis & Dissertation portal. Students are responsible for making sure the thesis meets the Graduate Schools' requirement (<http://gradschool.sc.edu/students/thesisdiss.asp>).

All Thesis Committee members must approve the final version and sign the Thesis Signature and Approval (TSF) form (<http://gradschool.sc.edu/forms/G-TSF.pdf>). The hard copy of the signed form, *with original signatures*, is submitted to the Graduate School. Multiple copies of this form can be used for those committee members who are out of the country provided all completed forms are returned to the Graduate School with original signatures (if you have questions, see your Graduate Director). If the student, with committee approval, should wish to publish a manuscript from his/her thesis, a letter requesting delayed release (embargo) of dissemination must accompany the TSF, signed by the student's thesis advisor and Graduate Director. Epidemiology master's students typically request a one-year embargo.

- 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.



### Approximate Thesis Milestone Deadlines for Graduation in May, August, or December:

| 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 – plan to give your committee at least 3 weeks prior to final defense | Early March   | Early June   | Early October  |
| Suggested defense date – don’t 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 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, working as a graduate research assistant.
- Should I collect my own data for the master’s thesis?**  
 No! Master’s students are not expected to undertake their own original research because it may be difficult to complete original research within the time frame of a master’s program. Students are strongly encouraged to use data already available.
- How can I find a dataset to analyze for my master’s thesis?**  
 There are a several publicly available datasets (e.g. BRFSS, NHANES, and NHIS). Additionally, students may be granted access to a faculty members research data. However, written permission from whoever controls that dataset, and necessary IRB approval must be obtained.
- What are the roles of the thesis committee members?**  
 The Thesis Director 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 to troubleshoot issues and in developing high quality thesis drafts.

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

- **What are acceptable research studies for an epidemiology thesis?**

There are several acceptable types of research that are acceptable for the epidemiology thesis. The most common research approach is a study of determinants of disease, i.e., testing one or more hypotheses about the relationship between an exposure(s) and a health-related outcomes(s). Other acceptable formats include validation of a measurement or screening test, and a formal systematic review or meta-analysis.

- **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), 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 speaks to the quality of your thesis research and will open doors in the public health practice and research settings. You are encouraged to discuss this issue with your Thesis Director.

- **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 these theses using the library website: <http://library.sc.edu/webdiss.html>. Click on CurrentResearch@USC.

## **DOCTORAL DEGREE PROGRAMS**

# *Doctoral Programs*

## Important Dates and Forms

- To be eligible for In-State tuition rate, out-of-state and international students must secure an assistantship no later than 30 days into the semester.
- Form an Advisory Committee (Faculty Advisor and Graduate Director) during the first term of enrollment and draft a Program of Study.
- Qualifying Exam – Epidemiology and Biostatistics students take the Qualifying Exam at different times. See pages 81-82 for details.
- Doctoral Program of Study Form (DPOS) must be approved by the Doctoral committee, Graduate Director, and Graduate School. This form is abbreviated DPOS in the Graduate School Forms Library. Submit the DPOS no later than the fall of the second year.
  - Any changes to the POS form must be submitted using the Program of Adjustment Form, (POSA)
- Admission to Doctoral Candidacy requires **both** passing the Qualifying Exam **and** having an approved Program of Study and must be one full academic year prior to graduation.
- Submit a Doctoral Committee Appointment Request (G-DCA) to form the committees needed for the comprehensive exam and dissertation. Typically, the same individuals serve on both these committees.
- Dissertation Proposal – at least *six months prior* to the dissertation defense. After successful completion of defense, submit the PhD Dissertation Proposal Form (department form) to the Graduate Director.
- Doctoral Comprehensive Exam – completed at least 60 days before the date of graduation. The PhD Examination Verification Form must be completed and sent in to the Graduate School.
  - The oral component of the exam should follow within one month of the written exam
  - Biostatistics Student may elect to have an oral exam replace the written comprehensive exam given immediately following their dissertation proposal.
- Graduation Application (Form AS-126)– submitted no later than 15 days after the beginning of the term in which candidate expects to graduate
- Dissertation Draft – Within 15 days after the start of the final term of study, submit draft of dissertation to advisor and committee members (or earlier if requested by the committee) and schedule dissertation defense. Submit a Dissertation Defense Announcement, using the

Graduate Management System (GMS). Submit dissertation via ETD process for initial format check.

- Dissertation Format Check - submitted to the Graduate School via ETD at least one week prior to final format check deadline.
- Dissertation Defense – at least one week prior to final dissertation submission. An announcement must be posted and sent out on the EPID-BIOS listserv 1 week prior to defense. A hard copy of the Dissertation Signature and Approval Form, with original signatures, must be submitted to the Graduate School after the defense. Detailed information provided on page 90.
- Final Dissertation – submitted to the Grad School via ETD no later than 20 days before the date of graduation.

# 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 practica, 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.

## *Advisement*

Students meet with their advisors 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 ([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 he/she can register online for classes. Be sure to include your email address on your advisement form.

## *Program of Study*

As early in the program as possible but no later than fall of the second year, in consultation with the Advisory and/or Dissertation Committee (described on pages 85-86 under Doctoral Committees), a doctoral student should complete a Doctoral Program of Study. The DPOS form must be signed by the student, student's advisor and the Graduate Director prior to submission to the Graduate School for approval. Doctoral program of study approval is required for official candidacy.

Epidemiology doctoral students can use the degree requirements listed on page 93 to assist them in filling out the Program of Study. Approved transfer credits are listed on the program of study, but approved content credits are NOT listed. 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 following courses do not count towards a student's program of study and should not be listed: EPID 701, BIOS 701, EPID 741, and BIOS 757. Courses taken for undergraduate credit can never be on any doctoral program of study. BBIP trainees must include all required BBIP coursework on their program of study.

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 and BIOS 710) cannot be on the program of study
5. Courses taken for undergraduate credit can never be 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.

### *Transfer Credit on Program of Study*

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 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 Towards Program of Study*

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.

## *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 Epidemiology or 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 Epidemiology or 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.

## *Annual Academic Review of Ph.D. Students*

Each Ph.D. 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. These reviews should be completed after the first semester of enrollment and annually thereafter. 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 part completed by the student and a part completed by the student’s advisor. Students determined to be making unsatisfactory progress will receive a letter from the Department Chair, which provides steps necessary to improve progress towards degree.

The annual report covers the following information:

1. Academic record including
  - a) overall grade point average;
  - b) any incomplete courses;
  - c) overall progress toward completing the coursework phase of the program.
2. Progress in completing or preparing for the Qualifying exam
3. Submission of an approved Doctoral Program of Study form
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.

## *Qualifying Examination*

The Qualifying Examination for Epidemiology students is offered on the Friday before the beginning of each Fall Semester. For Biostatistics students, the qualifying exam is administered the third Friday of the spring semester.

The intent of the Qualifying Exam is to measure potential for doctoral study and to assess the student's basic technical and professional knowledge. Doctoral students who completed a Master's degree in Epidemiology or 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 students are expected to take the exam no later than this). Epidemiology students must have completed both EPID 800 and EPID 801 before taking the Qualifying Exam. 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.

A student must register with his or her advisor's approval to take the Qualifying Examination. The deadline for this registration is posted as soon as the examination date is set and is generally one week prior to the examination date. If a student registers to take the Qualifying Examination and does not take it, this will count as one failed attempt unless the registration is canceled at least one week prior to the examination date.

The Qualifying Examination is distinct for epidemiology students and biostatistics students. The exams are prepared by each division's Exam Committee, with assistance from other faculty in that discipline. The Examination will consist of two parts, for which all students will need to appear. 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 later afternoon, after a break for lunch. Both parts will be considered together to determine the overall performance on the examination.

For Epidemiology students, the examination will focus on design and methodology issues and on content areas. Advanced material from EPID 701, EPID 741, EPID 800, EPID 801, and selected concepts from BIOS 701 and BIOS 757 may be reflected on the examination. The exam may include reading a published manuscript and responding to conceptual, design and methodological questions related to this publication or its subject matter. Students will be allowed to use a calculator; however, no software can be used and no further research can be done (e.g., via e-mail or the Internet). Students are given a sheet of standard formulas.

For Biostatistics students, the morning examination will focus master level coursework including: BIOS 701, BIOS 757, BIOS 758, BIOS 759, BIOS 761, EPID 701, STAT 512, STAT 513. The afternoon session will be more on theory and methodologies presented in the various Biostatistics and Statistics courses, possibly including more advanced concepts. Biostatistics students will complete the examination using pen/pencil and paper. Students will be allowed to use a calculator

but not any statistical software. They will be given a sheet of standard formulas.

Examinations are graded by multiple faculty members. Exam responses earning a score of 80% or above will be considered “Passing” and no Oral Examination will be required. Exam responses earning scores from 70%-79% will be considered “Passing” only upon successful completion of an additional Oral Examination. Exam responses earning scores below 70% will be considered “Failing”; 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. The oral examination is conducted by at least three faculty members and focuses on areas of the written exam that may have been unclear, incomplete, or otherwise of concern. Following the oral exam, students will be determined to have either passed or failed the Qualifying Examination.

Students taking the Examination will be notified of the results in writing 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. A debriefing session will be held after examination results are released to students. The student may also meet with his or her Faculty Advisor to discuss performance on the exam.

Each student is allowed two attempts at the Qualifying Examination. The qualifying exam retake is offered on the date listed in the table below, which is different for epidemiology and biostatistics students. The scoring and administration of the second attempt will follow the same process as the first, including the Oral Examination for those scoring in the range 70%-79%. If a student does not pass the examination on the second attempt, he or she is not allowed to continue in the program.

The examination schedule for epidemiology and biostatistics students are listed separately in the following table:

|                       | 2020                  | 2021   |  | 2020                   | 2021   | 2022   |
|-----------------------|-----------------------|--------|--|------------------------|--------|--------|
| Type of Exam          | Epidemiology Students |        |  | Biostatistics Students |        |        |
| Comprehensive ‡       |                       |        |  | 31-Jan                 | 29-Jan | 28-Jan |
| Comprehensive retake* |                       |        |  | 18-May                 | 17-May | 16-May |
| Qualifying†           | 14-Aug                | 13-Aug |  | 31-Jan                 | 29-Jan | 28-Jan |
| Qualifying retake ‡   | 31-Jan                | 29-Jan |  | 15-May                 | 14-May | 13-May |

\* First Friday after Summer classes start

† 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 (POS). 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 of a research university. The membership of the Graduate Faculty of The University of South Carolina subscribe to the position that a residency requirement may be met in multiple ways, and that these ways may be unique to specific degree programs.

All graduate programs are expected to encourage, design, provide and monitor the means for doctoral students to acquire the knowledge, skills, attitudes and values appropriate to their discipline through mechanisms that extend beyond mere course work. Regular attendance in courses to gain experience with specialized equipment and other scholarly materials and at seminars presented by scholars at The University of South Carolina and other invited guests is a beginning point. Additional experiences may include, but not be limited to, attending and presenting at professional conferences, participation in presentations of scholarly work, assisting with the conceptualization, and development and application for funding of scholarly efforts.

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 6 hours for students serving as graduate assistants and 9 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 Advisory Committee certifies on the doctoral program of study (**D-POS**) 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.

In the Department of Epidemiology and Biostatistics, dissertation hours (BIOS 899 or EPID 899) will not count toward the minimum residency requirement. Additionally, seminars (BIOS 845 or EPID 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 (EPID 890 or BIOS 890). The following methods courses are generally suitable for a student to do a teaching practicum (EPID 410, 700, 701, 741, 800, or 801 for epidemiology students and BIOS 700, BIOS 701 for biostatistics students).

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 number) 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 EPID/BIOS 890.

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 do the following:

- Ensure that 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 (EPID 890 or 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) leaving the course summary and evaluation criteria blank. Attach a copy of your completed consulting practicum contract to your ISC.
- Obtain the schedule code (CRN number) 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 (currently LaToya Reese) for processing. Register for EPID/BIOS 890.

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. The evaluations are done by completing an electronic form. The department Program Coordinator will provide links for the student to send to the faculty advisor and preceptor, and the student will click on the appropriate link to complete the student evaluation.

## *Doctoral Committees*

Within the first term of enrollment, the student should form a Doctoral Advisory Committee. This committee 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.

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 Doctoral Committee Appointment Request Form (G-DCA), found on the Graduate School website in the forms library, must be submitted to the Graduate School for approval PRIOR to the Dissertation Proposal and/or Comprehensive Exam Defense. Typically, the same individuals serve on both committees and the chair is the student's dissertation advisor.

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 from another USC 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. The student is expected to be actively involved in assembling the committee, asking each prospective faculty member if he or she would be willing to serve on the committee. The committee guides the student's work and offers advice on the Program of Study. The student's final Program of Study must be approved by the committee. Approval of outside members of the doctoral committees who are not tenure-track graduate faculty at USC 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 the Comprehensive Exam is to evaluate in-depth knowledge acquired by the student in the major area of concentration and in the cognate area. The exam is taken after the completion of doctoral coursework and is scheduled for the individual student. The exam will contain written and oral components. This exam is unique to each student and is prepared and administered by the Written and Oral Comprehensive Exam committee.

For epidemiology students, 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 epidemiologic 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 epidemiologic concepts as they relate to his or her research area and more broadly to epidemiologic research, and can demonstrate independent thinking as a PhD-level researcher.

Students may choose one of two options for their comprehensive exam, although the final decision rests with the student's dissertation advisor.

### *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. 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. As in the written component, any topic on the student's program of study could be represented in the oral component.

The exam committee evaluates both the written and oral components of the exam to determine whether the exam has been passed. 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. 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, he or she is not allowed to continue in the program. The examination must be completed at least 60 days before the date of graduation. The Comprehensive Examination Verification Form must be completed and sent in to the Graduate School upon completion of the examination.

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

#### **Exam Structure**

The written examination will consist of the dissertation proposal. The oral component of the comprehensive examination *must* include the oral defense of the dissertation proposal and an oral exam of additional questions from the dissertation committee. For epidemiology students, the oral exam offers the opportunity to ask more detailed questions related not only to the dissertation topic, but more broadly in the student's field of study, including: methods, measurement, biologic mechanisms, other literature related to the topic, and new approaches or research questions beyond the proposal. 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 the whiteboard to explain mechanisms or formulas.

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 3 hours.

#### **Exam Implementation**

Students are *not* allowed to bring in any outside materials or notes during the oral exam. 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 his/her 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 1-3 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 (EPID or BIOS 899). The student, in consultation with the Academic Advisor, will select a Dissertation Director from the departmental faculty. The Dissertation Director 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 Director, and if actively working on the dissertation that semester.**

The first step in the dissertation process is developing the dissertation proposal. The second step is an oral defense of the dissertation proposal before the student's doctoral committee. The committee must provide written signatures of their approval of the proposal before the student can proceed with the research. Manuscripts for inclusion in the dissertation that have been submitted and/or published cannot precede the dissertation proposal defense.

## *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 PI and/or dissertation advisor; in most situations, notification of the IRB or IRB liaison of a change in protocol is sufficient.

## *Deadlines*

The dissertation must be read, critically evaluated, and approved by all members of the Dissertation Committee. In accordance with Graduate School guidelines, the following deadlines must be met. The specific dates for a semester are available on the USC 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 PhD program.

- a. Initially, the student **must prepare a written dissertation proposal and conduct a presentation** to the Dissertation Committee for approval. The presentation of the proposal should be no less than 6 months prior to the dissertation defense.
- b. The first complete draft of the 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.

- c. The final copy is to be submitted to each committee member at least 30 days prior to the end of the semester (Graduate Studies Bulletin) or at least one week prior to the dissertation defense, whichever is earlier.
- d. 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.
- e. 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 committee must provide signatures approving the proposal before the student can proceed with the research. *Manuscripts for inclusion in the dissertation may not be submitted and/or published prior to the dissertation proposal defense.* Typically, the dissertation proposal consists of the introduction, literature review, and methodology that the student intends to use for the dissertation. In many cases, this forms the basis of the first three chapters of the final dissertation. The proposal approval form must be submitted to the Graduate Director (see appendix). The presentation of the proposal should be no less than 6 months prior to the dissertation defense.

## *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 include posting it on the Graduate School website (<http://gradschool.sc.edu/students/thesisdiss.asp?page=td>). 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 his/her Dissertation Examination 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.

If the student chooses the dissertation style of three manuscripts, the manuscripts must address a conceptually unified theme and a comprehensive, cumulative reference list is required. 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.

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. Multiple copies of this form can be used for those committee members who are out of the country as long as all completed forms are returned to the Graduate School with original signatures (if you have questions, see your Graduate Director). Students are required to format their dissertation as directed by the Graduate School. Be sure your dissertation meets the Graduate School's requirements (see: <http://gradschool.sc.edu/students/thesisdiss.asp?page=td>). The student should provide each Dissertation Committee member a copy of the final dissertation in a manner acceptable to the committee member.

# **Ph.D. in Epidemiology**

## ***CEPH Competencies and Learning Outcomes for the M.S.P.H. in Epidemiology***

The Doctor of Philosophy prepares students, through quality lecture, practical experiences and other research opportunities, for involvement in teaching and independent and collaborative epidemiological research; and trains researchers to teach and to pursue original research for investigating health-related conditions. The following goals are premised upon having successfully met all the objectives delineated previously that are common to the MPH and MSPH degrees.

The epidemiology competencies (CEPH) or learning outcomes (SACS) are:

1. Demonstrate in-depth expertise in at least one substantive content area of epidemiology.
2. Formulate hypotheses of scientific significance, and design a study employing appropriate epidemiologic methods to address the hypotheses.
3. Apply knowledge of relevant mechanistic pathways (e.g., physiological, genetic, behavioral, and social) to advance understanding of disease etiology.
4. Critically appraise epidemiologic studies for internal and external validity and develop skills to synthesize published epidemiologic evidence.
5. Apply a broad range of advanced statistical approaches to analyze epidemiological data.
6. Apply the methods and principles of sound epidemiologic and ethical practice (including those related to data collection, processing, management, documentation, and security) in the design and conduct of epidemiologic research.
7. Demonstrate the ability to prepare a competitive research grant application in the format specified by relevant government agencies and/or private foundations.
8. Effectively communicate epidemiologic concepts, methods, results, and implications to diverse audiences in oral and written formats.
9. Effectively teach epidemiologic concepts and methods.

## ***Degree Requirements for the Ph.D. in Epidemiology***

Coursework for the Ph.D. in Epidemiology assumes that the applicant has taken sufficient courses in the biological or social sciences, and has solid preparation at the Master's level in Epidemiology.

Generally, if a student enters the program with a master's degree in Epidemiology received within the last few years, he/she can automatically register for EPID 800 without having to take EPID 701 or EPID 741. For students holding a master's degree in a discipline other than Epidemiology, preparatory course requirements are set by the Academic Advisor, in consultation with the Admissions Committee and Graduate Director. As a minimum, applicants must master the content and skills taught in the following master's level courses: EPID 701, EPID 741, BIOS 701, BIOS 709, and BIOS 757. The departmental faculty also may require other extra courses on a case-by-case basis.

Per CEPH requirement, all doctoral students are required to take PUBH 700, a general public health course, as part of their curriculum. The requirement is waived for all students with an MPH degree. The requirement may also be waived with Graduate Director approval if a student can provide evidence of having taken a similar course during his/her master's degree program. In lieu of this course, the student will be required to take an additional 3 cognate hours.

Up to 12 credit hours of the required content listed on page 93 can be satisfied by previous graduate coursework which was part of a completed master's degree. The approved program of study must have a minimum of 42 hours post-master's hours, including 12 hours of EPID 899 Dissertation Preparation. For more information, refer to the section on Content Credit.

Required content listed on page 93 can also be satisfied by previous graduate coursework which was NOT part of a completed master's degree; however, the total number of transfer credit cannot exceed 12 credit hours. These courses will appear on the student's program of study if approved by the Graduate Director and the Graduate School. For more information, refer to the section on Transfer Credits.

## *Degree Requirements for the Ph.D. in Epidemiology (cont.)*

| <b>Course Number</b>                       | <b>Title</b>   | <b>Credit Hours</b> |
|--|--|---------------------|
| <b>SCHOOL OF PUBLIC HEALTH CORE</b>        |  |                     |
| PUBH 700                                   | Perspectives in Public Health <i>(or elective if student has an MPH or has taken a similar course during their master's)</i> | 3                   |
| <b>DEPARTMENT CORE</b>                     |  |                     |
| EPID 800                                   | Advanced Methodological Theory in Epidemiology   | 3                   |
| EPID 801                                   | Advanced Analytic Methods in Epidemiology  | 3                   |
| EPID 802                                   | Grant Writing for Epidemiologists  | 3                   |
| EPID 845                                   | Doctoral Seminar (1 credit per semester for 3 semesters)<br>(Students are required to take A, B and C)                       | 3                   |
| EPID 890                                   | Independent Study (Teaching Practicum)   | 3                   |
| EPID 890                                   | Independent Study (Consulting Practicum)   | 3                   |
| <b>MAJOR COURSES</b>                       |  |                     |
| EPID                                       | Other courses from Epidemiology  | 6                   |
| BIOS                                       | Biostatistics courses♦   | 9                   |
| <b>COGNATES (ELECTIVES)</b>                |  |                     |
| Electives                                  | must be approved by Academic Advisor   | 6                   |
| <b>DISSERTATION</b>                        |  |                     |
| EPID 899                                   | Dissertation Preparation   | 12                  |
| <b>TOTAL MINIMUM REQUIRED CREDIT HOURS</b> |  | <b>54</b>           |

♦ Courses recommended by Biostatistics faculty are: BIOS 755, BIOS 761, and BIOS 754

# **Ph.D. in Biostatistics**

## ***Goals and Learning Objectives for the Ph.D.***

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 MSPH degree.

### **Goal #1.**

PhD program graduates will demonstrate a mastery of biostatistical techniques well beyond that required of an MSPH 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.**

PhD program graduates will demonstrate the ability to teach topics in Biostatistics in a formal classroom setting.

- Learning outcome #1. Students will demonstrate the ability to present basic statistical material in a formal classroom setting.

### **Goal #3.**

PhD program graduates will demonstrate the ability to perform biostatistical consulting, including data analysis and interpretation.

- Learning outcome #1. 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.**

PhD program graduates will publish material from their dissertations in peer-reviewed professional journals in the areas of Biostatistics or Statistics.

- Learning outcome #1. Students will communicate results of newly developed techniques through publications and teaching.

## **Goal #5.**

PhD program graduates will demonstrate an overall mastery of the core concepts of public health.

- Learning outcome #1. Students will demonstrate an understanding of current public health practice and how various health-related disciplines contribute to achieving public *health goals*.

## ***Degree Requirements for the 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 1-1/2 years of university-level calculus, i.e. through multivariable calculus (equivalent courses at USC 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 and BIOS 710. 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 3 hours of cognate hours to replace this course.

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

| <b>Course Number</b>                             | <b>Title</b>  | <b>Credit Hours</b> |
|--|---|---------------------|
| <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                   |
|  |   |                     |
| 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 and BIOS 710 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 USC, and all "content" credit coursework must be taken within 10 years of the time of graduation.



# FINANCIAL ASSISTANCE, BBIP, TRAVEL GRANTS, 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 USC Graduate School. The USC Office of Student Financial Aid 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 go to [http://www.sc.edu/financialaid/contact\\_us.html](http://www.sc.edu/financialaid/contact_us.html)

## *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 USC 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 TAs, must co-register or have previously registered for GRAD 701 – Teaching Assistant Development.
- International students are required to attend two additional sessions: International Student Services' Orientation and English Programs for Internationals (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 has filed an exemption (Z-status) at the Graduate School.
- Must adhere to the work schedule determined jointly by the supervisor (faculty or agency supervisor) and student.
- All assistantships are arranged through the Graduate Directors.
- 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.
- 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 (TA or GA evaluation 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 USC 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. Having TA/IA training credentials looks great on your CV.

## *Additional Orientation and 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, he or she 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 his/her academic advisor 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 his or her supervisor about the time he or she 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 his or her 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: Dean's office: [ASPH Travel Funding](#)  
Graduate School: [Graduate School Travel Funding](#)

# COURSE DESCRIPTIONS

- 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.
- 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 USC). (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 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.
- EPID 700 **Introduction to Epidemiology.** (3) (every spring in person, every summer online). 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) (Prereq or Coreq: BIOS 701 or permission of instructor) (every fall) 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.** (every fall) (2) 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) (prereq: EPID 700/701, PUBH 725 or permission of instructor) (every fall beginning fall 2020) 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) (Prereq or Coreq: EPID 741) (offered in spring 2020 and every fall beginning fall 2020) Introduction to the concepts, implementation and evaluation of surveillance systems to monitor the health of human populations.
- EPID 741      **Intermediate Epidemiologic Methods.** (3) (Prereq: EPID 700/701; Coreq: BIOS 757/758, and **either** Prereq: BIOS 710 or Coreq: BIOS 709) (every spring) 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 700) (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.
- EPID 746      **Cancer Epidemiology.** (3) (Prereq: EPID 700) (spring of every odd year) Epidemiology of selected cancers in humans, including etiology, pathophysiology, identification and description of events of cancer and outcomes.
- EPID 747      **Environmental Epidemiology.** (3) (Prereq: EPID 700, BIOS 700) (spring of every even year) Emphasis on the epidemiology of selected environmental factors which may affect human health including the identification of health hazards and methods of investigation.
- EPID 749      **Infectious Disease Epidemiology.** (3) (Prereq: EPID 700 and BIOS 700, or consent of instructor) (every fall) 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 758      **Application of Epidemiology in Public Health.** (3) (Prereq: EPID 701 and EPID 741) (fall 2019 last time offered) The purpose of this course is to develop applied research skills in epidemiology in the context of public health research and practice. Covers methods focusing on competencies, skills, and characteristics essential to the practice of public health.
- EPID 763      **Nutritional Epidemiology.** (3) (Prereq: EPID 700/701 and BIOS 700/701). (every fall) 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) (Prereq: EPID 700/701, BIOS 700/701, or permission of instructor) (spring of every even year) Epidemiology of major reproductive outcomes in humans with emphasis on pathophysiology, risk factors, analytic methods of investigation and surveillance/monitoring of reproductive events.
- 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.
- EPID 768      **Psychiatric Epidemiology.** (3) (Prerequisites: EPID 700 or 701) (Offered every odd fall.) 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) (Prereq: EPID 700/701 or equivalent) (every even spring) 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 788      **Practical Methods for Secondary Data Analysis.** (3) (Prereq: EPID 700/701, BIOS 700/701, EPID 741 or equivalent research methods class, intermediate statistics class (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 M.P.H. or M.S.P.H. 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. *(pending approval of Graduate School)*

- EPID 798 **Public Health Practice.** (1-6) (Prereq: All core courses and at least one SPH course) (**all MPH students enrolled prior to Fall 2019**) 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)
- EPID 798 **Epidemiology Applied Practice (2).** *For all MPH students enrolled beginning Fall 2019. Course approved to begin Fall 2020.* 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).
- EPID 800 **Advanced Methodological Theory in Epidemiology.** (3) (Prereq: EPID 741 or permission of instructor). (every fall) 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) (Prereq: EPID 741 and BIOS 757 or equivalent courses) (every spring) Application of advanced analytical methods, relying heavily on problem solving, data analysis and interpretation.
- EPID 802 **Grant Writing for Epidemiologists.** (3) (Prereq: EPID 741 or permission of instructor). (every Spring) 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) (Prereq: EPID 741, BIOS 759) (currently not offered) 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, repeatable up to 3 times) (Prereq: complete at least one semester of coursework and consent of instructor) (every semester) May be

repeated for credit as content varies by title. (Pass/Fail grading). 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).

- EPID 847     **Advanced Environmental Factors and Human Health.** (3) (Meets with EPID 747, offered every even Spring). 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). 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, when offered varies). 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) (every odd fall). (Prereq: EPID 700/701). 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) (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.** (3). Content varies by title. May be repeated for credit. *(Fall 2020 approved for variable credit course 1-3).*
- 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)

|          |  |
|----------|--|
| BIOS 700 | <b>Introduction to Biostatistics.</b> (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 | <b>Concepts and Methods of Biostatistics.</b> (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 | <b>Introduction to SAS.</b> (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 | <b>Effective Data Management for Public Health.</b> (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 | <b>Introduction to R Programming.</b> (1) (every fall & summer) 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 | <b>Introduction to Stata Software.</b> (1) (every fall & summer) 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 | <b>Working with Databases in Public Health.</b> (1) (every fall & summer) 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 719 | <b>Advanced SAS Methods for Public Health.</b> (1) (every fall & summer) 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 | <b>Seminar in Biostatistics.</b> (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 | <b>Introduction to Complex Survey Data Analysis.</b> (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) (Prereq: HSPM 700, BIOS 700) (currently not offered) Origin and operation of databases serving governmental and institutional policy and management of programs.
- BIOS 752 **Vital Record and Health Survey Data Analysis.** (3) (Prereq: BIOS 700, BIOS 710, EPID 700) (currently not offered) 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) (Prereq: EPID 700, BIOS 700, consent of instructor) (currently not offered) Process, skills, and management of undertaking health studies in the human community.
- BIOS 754 **Discrete Data Analysis.** (3) (Prereq: BIOS 757 and EPID 700/701) (every fall) 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) (Prereq: A course in introductory statistics) (every semester) Public health applications of correlation, regression, multiple regression, single and multi-factor analysis of variance and analysis of covariance.
- BIOS 758 **Advanced Biostatistics.** (4) (Prereq: BIOS 701) (every spring) 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 **Biostatistical Methods for Rates and Proportions.** (2-3) (Prereq: EPID 701 and BIOS 757) (every fall) 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) (Prereq: EPID 700, BIOS 700, EPID 741, BIOS 757) (fall of every odd year) 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) (Prereq: BIOS 757 or equivalent) (every fall) 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) (Prereq: BIOS 757) (spring of every odd year) 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) (Prereq: BIOS 757 or STAT 701 or STAT 705). (every spring) 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) (Prereq: BIOS 757) (spring of every even year) 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 M.P.H. or M.S.P.H. 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) (Prereq: BIOS 759 or STAT 704 and consent of instructor) (fall of every even year) 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) (Prereq: BIOS 761) (spring of every even year) 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 820     **Bayesian Biostatistics and Computation.** [=STAT 745] (3) (Prereq: BIOS 757 or STAT 705) (fall of every odd year) 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) (Prereq: BIOS 757 and 759) (fall of every even year) 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) (Prereq: STAT 516 or BIOS 757) (spring of every even year) 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.** (1-3) (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*

<http://gradschool.sc.edu/DocLibrary/>

1. Application for Graduation (AS-126)
2. Doctoral Comprehensive Exam Verification
3. Course Overload Enrollment Authorization (GS-54 CEO)
4. Dissertation Signature and Approval Form (G-DSF)
5. Doctoral Committee Appointment Request (GS-48 G-DCA)
6. Doctoral Program of Study (DPOS)
7. Grievances, Appeals and Petitions form (G-GAP)
8. Immigration Forms/Documents
9. Immunization Form
10. Independent Study Contract (GS-50 G-ISC)
11. Master's Comprehensive Exam Verification
12. Master's Program of Study - Savable (MPOS (S))
13. Permit for Course Revalidation Examination (GS-04 PRE)
14. Program of Study Adjustment Form (GS-43 POSA)
15. Qualifying Exam Verification
16. Request for Transfer of Graduate Credit (G-RTC)
17. Request for Special Enrollment or Z-status (GS-ZS)
18. Survey of Earned Doctorates (SED)
19. Thesis Defense Signature and Approval Form (G-TSF)

## *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
4. Doctoral Comprehensive Exam Verification
5. Doctoral Dissertation Proposal Form (Department form)
6. Doctoral Committee Approval Form
7. Doctoral Dissertation Signature and Acceptance Form
8. Independent Study Contract Form



9. Thesis Signature and Acceptance Form
10. Master's Committee Appointment form (Department form)
11. Master's Thesis Proposal Form (Department form)
12. Early Clearance Procedures
13. Request for Travel Reimbursement (Department form)

*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)

# 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.

### **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 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. The school's website for ISS is [www.iss.sc.edu](http://www.iss.sc.edu).

## *Carolina Card*

The Carolina Card is your permanent USC 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, see the frequently asked questions online: <http://carolinacard.sc.edu/faqs.html>.

## *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](#)). 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 include Healthy Carolina, Multicultural Student Affairs, 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 Student Health Services, including the new Center for Health and Well Being, visit their website: [http://sc.edu/about/offices\\_and\\_divisions/student\\_health\\_services/](http://sc.edu/about/offices_and_divisions/student_health_services/).

## *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 USC 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](#).

## **APPENDICES**

## **Appendix I.**

### **Epidemiology MPH Foundational Competencies (CEPH)**

#### **Evidence-based Approaches to Public Health**

1. Apply epidemiological methods to the breadth of settings and situations in public health practice
2. Select quantitative and qualitative data collection methods appropriate for a given public health context
3. Analyze quantitative and qualitative data using biostatistics, informatics, computer-based programming and software, as appropriate
4. Interpret results of data analysis for public health research, policy or practice

#### **Public Health & Health Care Systems**

5. Compare the organization, structure and function of health care, public health and regulatory systems across national and international settings
6. Discuss the means by which structural bias, social inequities and racism undermine health and create challenges to achieving health equity at organizational, community and societal levels

#### **Planning & Management to Promote Health**

7. Assess population needs, assets and capacities that affect communities' health
8. Apply awareness of cultural values and practices to the design or implementation of public health policies or programs
9. Design a population-based policy, program, project or intervention
10. Explain basic principles and tools of budget and resource management
11. Select methods to evaluate public health programs

#### **Policy in Public Health**

12. Discuss multiple dimensions of the policy-making process, including the roles of ethics and evidence
13. Propose strategies to identify stakeholders and build coalitions and partnerships for influencing public health outcomes
14. Advocate for political, social or economic policies and programs that will improve health in diverse populations
15. Evaluate policies for their impact on public health and health equity

#### **Leadership**

16. Apply principles of leadership, governance and management, which include creating a vision, empowering others, fostering collaboration and guiding decision making
17. Apply negotiation and mediation skills to address organizational or community challenges

**Communication**

18. Select communication strategies for different audiences and sectors
19. Communicate audience-appropriate public health content, both in writing and through oral presentation
20. Describe the importance of cultural competence in communicating public health content

***Interprofessional Practice***

21. Perform effectively on interprofessional teams

**Systems Thinking**

22. Apply systems thinking tools to a public health issue

## **Appendix II.**

### **Epidemiology MPH**

### **Foundational Public Health Knowledge Competencies (CEPH)**

#### **Profession & Science of Public Health**

1. Explain public health history, philosophy and values
2. Identify the core functions of public health and the 10 Essential Services
3. Explain the role of quantitative and qualitative methods and sciences in describing and assessing a population's health
4. List major causes and trends of morbidity and mortality in the US or other community relevant to the school
5. Discuss the science of primary, secondary and tertiary prevention in population health, including health promotion, screening, etc.
6. Explain the critical importance of evidence in advancing public health knowledge

#### **Factors Related to Human Health**

7. Explain effects of environmental factors on a population's health
8. Explain biological and genetic factors that affect a population's health
9. Explain behavioral and psychological factors that affect a population's health
10. Explain the social, political and economic determinants of health and how they contribute to population health and health inequities
11. Explain how globalization affects global burdens of disease
12. Explain an ecological perspective on the connections among human health, animal health and ecosystem health (e.g., One Health)

### Appendix III.

## Required Competencies for MPH Epidemiology Applied Practice (EPID 798)

| CEPH/Dept<br>Competency<br>Number   | Competency   | Foundational<br>or<br>Epidemiology | Required?<br>Yes or No                    |
|---|--|------------------------------------|---|
| <b>1</b>  | Apply epidemiological methods to the breadth of settings and situations in public health practice  | Foundational                       | Yes                                       |
| <b>6</b>  | Discuss the means by which structural bias, social inequities, and racism undermine health and create challenges to achieving health equity at organizational, community, and societal levels. | Foundational                       | Yes                                       |
| <b>19</b>   | Communicate audience-appropriate public health content, both in writing and through oral presentation.   | Foundational                       | Yes                                       |
| In addition to the 3 required competencies above, you must also choose two competencies from the list below. The competencies may be either foundational or epidemiology-specific, should be based on personal, professional, and applied practice goals, and are approved by your faculty advisor. |  |                                    |   |
| <b>2</b>  | Select quantitative and qualitative data collection methods appropriate for a given public health context.   | Foundational                       | Choose any 2 competencies from this list. |
| <b>3</b>  | Analyze quantitative and qualitative data using biostatistics, informatics, computer-based programming and software, as appropriate  | Foundational                       |   |
| <b>4</b>  | Interpret results of data analysis for public health research, policy or practice.   | Foundational                       |   |
| <b>7</b>  | Assess population needs, assets, and capacities that affect communities' health.   | Foundational                       |   |
| <b>9</b>  | Design a population-based policy, program, project or intervention.  | Foundational                       |   |
| <b>2</b>  | Determine the appropriate study design for a given public health problem and content   | Epidemiology                       |   |
| <b>5</b>  | Develop appropriate data collection protocols for a given public health issue and context.   | Epidemiology                       |   |



## Appendix IV. Master's Student Annual Report (p. 1 of 3)

All master's student who remain in the program after 2 years must complete this form by October 1 of their third fall semester. All sections of this report **except for the Advisor Comment section** should be completed by the student. The student should then forward the completed form via email to his/her academic advisor, who will then complete the Advisor Comment section and submit the form via email to the Graduate Director.

Date: \_\_\_\_\_

First Name: \_\_\_\_\_

Last Name: \_\_\_\_\_

\_\_\_\_\_  
Email address: \_\_\_\_\_

Degree Program (circle degree and division):    MPH            MSPH            **in:**    EPID  
BIOS

Academic Advisor: \_\_\_\_\_

Thesis or Practicum Advisor: \_\_\_\_\_

Semester and Year enrolled in the Program: \_\_\_\_\_

Grade Point Average in the Program: \_\_\_\_\_

Anticipated Graduation (Semester and Year):    \_\_\_\_\_    \_\_\_\_\_

List any coursework listed on your program of study that has NOT been completed (include incompletes). List the number of thesis or practicum hours for which you have registered to date.

| Dept Prefix | Course Number | Course Name | Term and Year when you will take | Grade (if incomplete) | Total number of thesis or practicum hours to date |
|-------------|---------------|-------------|----------------------------------|-----------------------|---|
|             |               |             |                                  |                       |   |
|             |               |             |                                  |                       |   |
|             |               |             |                                  |                       |   |

### Program of Study

Has your program of study been accepted by the Graduate School?            YES    NO

If yes, what date was your program of study approved? \_\_\_\_\_

If no, briefly describe your planned timeline for submission to the Graduate School.

## **Appendix IV.**

### **Master's Student Annual Report (p.2 of 3)**

#### **MSPH STUDENTS ONLY**

##### **Comprehensive Examination**

Have you successfully passed your comprehensive examination?    YES    NO

If no, describe your plan for timeline for taking and passing the comprehensive exam.

##### **Thesis Advisor & Committee**

Do you have a thesis advisor?    YES    NO

If no, describe your plan for finding a thesis advisor and your timeline for doing so.

If yes, who is your thesis advisor: \_\_\_\_\_

List committee members: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

What is the working title of your thesis? \_\_\_\_\_

Describe what your thesis work is about \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

##### **Thesis Proposal**

Have you successfully defended your thesis proposal?    YES    NO

If no, describe your plan for defending your thesis proposal and your timeline for doing so.

##### **Thesis Defense**

Have you successfully defended your thesis?    YES    NO

If no, describe your plan for defending your thesis and your timeline for doing so.

**Appendix IV.**  
**Master's Student Annual Report (p. 3 of 3)**

**MPH Students ONLY**

- |                                       |     |    |
|---------------------------------------|-----|----|
| 1. Have you completed your Practicum? | YES | NO |
| 2. Have you completed your ILE        | YES | NO |

If you answered no to either question above, provide a plan and timeline for completion.

**ADVISOR COMMENT SECTION (MSPH and MPH students)**

Please comment on the student's overall progress in the Master's program. Discuss any difficulties the student has encountered and how they are being addressed.

## Appendix V.

### MSPH Epidemiology Thesis Proposal Defense Rubric and Process (p.1 of 2)

Student Name: \_\_\_\_\_

Date: \_\_\_\_\_

Thesis Committee Chair: \_\_\_\_\_

Each section should receive a score of 1, 2, 3, or 4 (separately by each committee member then consolidate into one document for final decision)

4=excellent      3=good      2=meets expectations      1=does not meet expectations

| Section  | Score |
|--|-------|
| Chooses a research question of scientific interest/importance  |       |
| Understands public health importance of chosen topic   |       |
| Performs a synthesis of the literature   |       |
| Demonstrates an understanding of mechanisms underlying study aims  |       |
| Demonstrates in-depth expertise in at least one subject area   |       |
| Specific Aims <ul style="list-style-type: none"> <li>Formulates hypotheses relative to study design</li> </ul>   |       |
| Methods <ul style="list-style-type: none"> <li>Uses appropriate statistical methods to evaluate study aims</li> <li>Demonstrates clear understanding of strengths and limitations of epidemiologic methods</li> </ul>  |       |
| Quality of writing <ul style="list-style-type: none"> <li>Proposal free of grammatical and spelling errors</li> <li>Proposal written clearly and succinctly</li> </ul>   |       |
| Quality of oral presentation <ul style="list-style-type: none"> <li>Slides</li> <li>Oral presentation</li> </ul>   |       |
| Response to questions following presentation   |       |
| Application of sound data management and ethical principles (where applicable) <ul style="list-style-type: none"> <li>IRB application</li> <li>Other practices to protect human subjects</li> <li>Data security practices</li> <li>Data management practices</li> <li>Documentation practices</li> </ul> |       |
| Overall Assessment   |       |

## **Appendix V.**

### **MSPH Epidemiology Thesis Proposal Defense Rubric and Process (p.2 of 2)**

Comments:

Committee Chair: \_\_\_\_\_

#### **Process**

The student needs to submit the written proposal to committee members to review and provide comments at least 2 weeks before the final submission. On the day of the defense the student needs to make an oral presentation of the thesis, following which the committee members will ask questions. The grade will be assigned based on the written document, oral presentation, and response to questions.

The committee members will give one set of scores after discussing and reaching a consensus.

If a score of 1 is given on any criteria, the committee can require the student to revise and resubmit.

Grade: Average score 2 = Pass.

If a student receives an average score of  $<2$ , the committee will provide a written list of revisions. The student will have 15 days to correct the deficiencies and resubmit the report. If the average score provided by the committee following revisions is 2 or higher the student will receive a passing grade. If the average score remains  $<2$  the student will receive a failing grade and will need to repeat the defense.