EPIDEMIOLOGY, PHD

The PhD program in epidemiology prepares graduates for many career paths, including academia, non-governmental organizations, and public service at all levels of local, national, and international government. Faculty in epidemiology have a broad range of interests in health equity, chronic disease, cancer, nutrition, epidemiologic methods, and environmental epidemiology. Through rigorous theoretical and methodological training, students learn to conduct independent research that examines the distribution and determinants of health, and to translate their findings to public health policy and strategies to promote population health. The program encourages applicants from diverse backgrounds who have a clearly communicated interest in epidemiology and in promoting health equity.

This program also meets requirements outlined by the national Council on Education for Public Health (CEPH).

Admission Requirements

Application Deadlines

Application deadlines vary by program, please review the application deadline chart (http://uwm.edu/graduateschool/program-deadlines/) for specific programs. Other important dates and deadlines can be found by using the One Stop calendars (https://uwm.edu/onestop/dates-and-deadlines/).

Admission

Applicants must meet Graduate School requirements plus these departmental requirements to be considered for admission to the program:

1. Submission of scores from the Graduate Record Examination (GRE), taken within 5 years of the date of application. While there is not a minimum GRE score requirement, strong quantitative, verbal and writing skills are critical to successfully completing the program.
2. Three letters of recommendation are required. At least one letter must be from a university faculty member.

Recommended:
- Applicants should have an earned bachelor's degree in any field with a cumulative undergraduate GPA of 3.0 or higher.
- A completed Master's degree in Epidemiology, public health or the social sciences is encouraged, but not required.
- At least one undergraduate mathematics or statistics course and one biological sciences course with a 3.0 is preferred.

Reapplication

A student who receives the Master of Public Heath degree must formally reapply to the Zilber College of Public Health to gain admission to the PhD program in Public Health before continuing studies toward the PhD.

Credits and Courses

The curriculum consists of 75 credits to degree completion beyond the bachelor's degree – 66 credits of didactic coursework and 9 credits toward dissertation writing and research. Students will take 24 credits of coursework to introduce them to the principles of Epidemiology, Biostatistics, public health policy and community engagement. They will take 6 credits of 's' elective coursework in subject matter areas, 6 credits of coursework in more advanced analytic methods, and 3 credits of an elective in an area that aligns with their research interests. They

will also take 9 credits of advanced coursework in both theoretical and applied epidemiology, in addition to 6 credits in more advanced policy analysis and translation of epidemiologic findings to policy interventions. Additionally, students will take 12 credits of PhD-level coursework in research ethics, community engagement, and a seminar in current issues in epidemiology. Students may apply previous graduate course work towards didactic credits, contingent on assessment of course equivalencies, in accordance with UW-Milwaukee policies.

Code	Title	Credits
Required Core PhD Courses		
PH 704	Principles and Methods of Epidemiology	3
PH 759	Intro to Regression for Understanding the SDOH	3
PH 801	Seminar in Public Health Research	3
PH 819	Social and Environmental Justice in Public Health	3
EPI PhD Required Courses		
PH 700	Structures of Inequality and Population Health	3
PH 702	Introduction to Biostatistics	3
PH 705	Principles of Public Health Policy and Administration	3
PH 758	Social Epidemiology	3
PH 761	Epidemiology Field Methods	3
PH 763	Epidemiology for Equity	3
PH 779	Public Health Policymaking and Policy Analysis	3
PH 804	Advanced Epidemiology	3
PH 823	Applied Analysis of Binary Outcomes in Public Health Research	3
PH 864	Research Ethics in Epidemiology and Public Health	3
PH 870	Epidemiology in Health Policy and Advocacy	3
PH 904	Survey of Analytic Methods for Epidemiology	3
PH 960	Core Doctoral Seminar in Epidemiology	3
Research		**9**
PH 990	Research and Dissertation	
Required Epidemiology Subject Matter "S" Elective		
Select two courses from the following:		6
PH 762	Environmental Epidemiology	
PH 768	Cancer Epidemiology	
PH 769	Critical Perspectives on Nutritional Epidemiology and the Food System	
PH 865	Critical Methodologies for Health Equity Research	
PH 868	Epidemiologic Links Between Infectious and Chronic Disease	
Analytic Methods Electives		
Select two courses from the following; other classes as approved:		6
ED PSY 823	Structural Equation Modeling	
ED PSY 832	Theory of Hierarchical Linear Modeling	
GEOG 525	Geographic Information Science	

PH 712	Probability and Statistical Inference	
PH 714	Statistical Genetics and Genetic Epidemiology	
PH 715	Applied Categorical Data	
PH 716	Applied Survival Analysis	
PH 717	Applied Longitudinal Data Analysis	
PH 718	Data Management and Visualization in R	
PH 729	Survey Research Methods in Public Health	
PH 776	Qualitative Approaches in Public Health Policy	
SOCIOL 982	Advanced Quantitative Analysis	
Other Electives		
Select one course from the following; other classes as approved:		3
PH 727	Program Planning & Implementation in Public Health	
PH 728	Program Evaluation in Public Health	
PH 784	Social and Economic Policy as Health Policy	
PH 808	Writing a Federal Grant in the Public Health Sciences	
PH 820	Maternal and Child Health Foundations, Policy and Practice	
PH 826	Principles of Community Intervention Research	
PH 831	Community Engagement and Participatory Research Approaches in Public Health	
Total Credits		**75**

Note: Students may apply previous graduate course work towards didactic PhD credits, contingent on assessment of course equivalencies, in accordance with UW-Milwaukee policies.

Additional Requirements

Major Professor as Advisor

As specified in Graduate School regulations, each student must have a major professor to advise and supervise their studies. During the application process, students will be asked to describe the research areas they are primarily interested in and identify faculty with whom they may potentially have shared research interests. The entering student is assigned an advisor/major professor at admission based on fit and focus. The major professor serves as the student's research mentor and will guide the student in course selection, program planning, and research design. Students may change their advisor/major professor if the fit and focus change over time. Such changes will need approval of the graduate program committee. The major professor must have graduate faculty status.

Residence

The student must complete 8 to 12 graduate credits in each of two consecutive semesters, or 6 or more graduate credits in each of three consecutive semesters, exclusive of summer sessions. Residence requirements cannot be met at the master's level.

Preliminary Examination

Students must pass a PhD Preliminary Examination before advancement to PhD candidacy (i.e., dissertator status). The exam will consist of a single take-home exam in which students provide written answers (about 20-25 double-spaced pages) to a series of questions in reference to select epidemiologic research articles. Students will have one week (typically Monday to Monday) to complete the exam. The Doctoral Preliminary Examination Committee will select the research articles and create the exam. The questions will assess several PhD program competencies and will require students to integrate content related to 1) epidemiologic concepts and methods, 2) data analysis methods and applications to epidemiologic research, 3) applications of theory, social and environmental justice, health equity, and community engagement to epidemiologic research, and 4) policy implications of epidemiologic research. The examining committee will grade the exam and assign either a pass, conditional pass, or fail. For a conditional pass, the examining committee will determine options for remediation including but not limited to an oral presentation or re-write of certain questions. At the discretion of the examining committee, a student who fails the preliminary exam may be allowed one additional attempt with all or part of the examination.

Dissertation Proposal

The student, in consultation with the Major Professor, will select members to form a PhD Advisory Committee. See the Zilber College of Public Health Graduate Student Handbook and the Graduate School Doctoral Requirements page for more information on the doctoral committee. The dissertation research plan should include an abstract, background, outline of specific aims and hypotheses, (articulated as three distinct but related research questions), preliminary findings (if applicable), research methods proposed, public health significance of the proposed research and references. The composition of the dissertation committee must be in compliance with the rules and regulations of the Graduate School. The candidate then submits a written dissertation plan to be reviewed and formally approved by the dissertation advisory committee. The research plan must clearly outline the student's obligation for completing an original piece of work of sufficient quality, as determined by the committee. The review and approval process for the dissertation research plan will include a formal presentation to the committee.

Dissertation Defense

Upon approval of the dissertation proposal, students will proceed with an original and significant research investigation under the supervision of their major professor, culminating in a written dissertation.

The dissertator must, as the final step toward the degree, pass an oral examination in defense of the dissertation. The dissertation defense will be publicly announced and open to the academic community. Once the defense is completed, students will be encouraged to revise their dissertation and submit it for publication.

Once the committee has formally approved the dissertation document and the oral defense, and the Chair of the appropriate program has certified completion of all requirements, the candidate is awarded the Ph.D. in Public Health.

Time Limit

All degree requirements must be completed within ten years from the date of initial enrollment in the doctoral program.

Epidemiology PhD Learning Outcomes

Doctoral students in Epidemiology can expect to:

1. Integrate knowledge regarding biological, behavioral, cultural, and sociopolitical mechanisms within historical contexts operating at multiple levels of causation to shape hypotheses regarding population health and health equity.
2. Critically evaluate epidemiologic theories of disease distribution and epidemiologic frameworks of causation.
3. Apply theories across multiple disciplines to frame and interpret epidemiologic research with attention to relevant policy and practice implications.
4. Critically appraise the scientific literature to identify strengths and limitations of existing methodological approaches in the field of epidemiology.
5. Design and conduct independent, interdisciplinary epidemiologic research using appropriate qualitative and/or quantitative methods and demonstrating knowledge of theory, study design, sources of bias, and other limitations to causal inference.
6. Explain the principles and methods of conducting community-engaged epidemiologic research to promote population health and health equity.
7. Develop self-reflexive and other skills for justice-oriented, ethical epidemiologic research and practice.
8. Communicate, orally and in writing, epidemiologic concepts, methods, and research findings.
9. Translate epidemiologic findings into policy recommendations and advocacy strategies that promote population health and health equity.

PhD Core Learning Outcomes

Doctoral students in all public health programs can expect to:

1. Formulate and test a hypothesis using basic statistical methods.
2. Apply statistical inference to guide research decision-making relevant to public health problem and issues.
3. Evaluate *critically* scientific literature and identify how epidemiological and population health data can be used to answer research questions and inform program development and policy decisions aimed at promoting health equity.
4. Demonstrate critical thinking skills necessary for formulating research questions, identifying theory to frame research questions, and identify and employ appropriate methodologies for addressing a public health research question.
5. Apply social and environmental justice framework when asking and addressing research questions impacting the public's health.