

Epidemiology & Biostatistics

College of Public Health

The Ph.D. program in Epidemiology and Biostatistics at the University of Kentucky is intended to prepare professionals for a career in conducting population-based research and clinical trials. This is a unique program which strongly emphasizes the acquisition of applied skills in the complementary fields of epidemiology and biostatistics, as well as the theoretical foundations of these disciplines. Graduates of this program will be prepared to address the practical challenges of conducting population-based and clinical, translational research in the multidisciplinary work environments of academia, government, and industry. The essentially strong cross-training and mentoring nature of the program is intended to develop independent researchers who will be skilled in designing and conducting studies as well as analyzing, and interpreting the results from an increasing variety of designs and databases in the public health and medical research domains.

The target audience for this program will include students with an appropriate prior bachelor's or master's degree (in biostatistics, epidemiology, statistics, health services research, mathematical sciences, or a related field) with prior mathematical training to include two semesters of calculus (univariate, differential and integral) and statistical methods. Practicing health care professionals (MDs, DMDs, PharmDs, etc.) who are interested in pursuing independent, doctoral level, research careers will be targeted for the program. Master's graduates from psychology, computer science, engineering, business, biology, or chemistry may also find this degree program attractive.

Program Overview

Students will complete a minimum of 57 credit hours of study plus dissertation research and the corresponding residency credits. The core curriculum consists of 33 credit hours comprising eleven courses, including nine courses in epidemiology and biostatistics, a 1-credit-hour doctoral seminar, and a three-credit-hour course that will serve as a broad introduction to public health. Students will also complete a minimum of 24 credit hours of electives, including at least three DGS-approved epidemiology courses and two 700 level biostatistics courses. Electives must be approved by the student's dissertation committee and the DGS. If the student does not yet have a dissertation committee at the time approval is sought for an elective, then approval will rest with the DGS, who will serve as the student's academic advisor until such time as the student has a dissertation advisor.

After passing a written comprehensive examination over selected core courses (between the Fall and Spring semesters of the second year for a full-time student), the student will select a dissertation advisor and form a dissertation committee. The dissertation research will be an original scientific project which is integrative in the sense that either advanced biostatistical methods are applied to a population-based epidemiologic study of sufficient size and appropriate design, or original theoretical research is undertaken in biostatistics with applied research problems. Ordinarily a dissertation document will produce at least three manuscripts of publishable quality, as well as an integrative literature review. The scope of the project will demonstrate independence, mastery of research skills, thoughtful reflection of the results, and contribute to new knowledge in the field of investigation. The student must pass both an oral qualifying examination in the early stages of dissertation research and a final oral defense once the dissertation research has been completed.

Admission Requirements

Please follow the instructions at <http://gradschool.uky.edu/welcome-university-kentucky>.

The Ph.D. program in Epidemiology and Biostatistics has its own earlier deadline of 01 February

preceding the fall semester in which the applicant hopes to begin graduate work. This Ph.D. program does not admit students for the spring or summer semesters. See the handbook (p.6) at http://www.uky.edu/publichealth/sites/www.uky.edu/publichealth/files/Academics/PhD_epi-bio/2017-2018%20PhD%20in%20Epidemiology%20%26%20Biostatistics%20Handbook.pdf for additional application requirements, including the submission of some material through SOPHAS.

Financial aid may be available to qualified applicants. For further information about financial aid, academic policies, courses, and other program requirements, please refer to the handbook.

Course Descriptions

EPI 714 EPIDEMIOLOGIC STUDY DESIGN. (3)

This course provides students with advanced course material relevant to the planning and execution of epidemiologic studies of various designs. The course will consider study designs which employ routinely collected data on disease occurrence, such as would be undertaken in government agencies and health departments, and the classic etiologic study designs including the case-control, prospective cohort, retrospective cohort, nested case control, case-cohort and case-crossover designs. The course will focus considerable attention on measurement methods and measurement error, borrowing examples from the subfields of epidemiology including occupational, cardiovascular, and social epidemiology. Given current interest on multilevel methods of analysis, the class will discuss approaches to the incorporation of designing multilevel studies. Finally, we will consider recent advances in experimental epidemiology with consideration of controlled community trials. Prereq: CPH 605 or consent of instructor.

EPI 715 RESEARCH METHODS IN EPIDEMIOLOGY AND BIOSTATISTICS. (3)

This course builds a broad array of skills that are useful for the design and development of research protocols and funding applications for peer review, and for the analysis of resultant scientific data. Prereq: BST 760, EPI 714, and BST 639.

EPI 716 INFECTIOUS DISEASE EPIDEMIOLOGY. (3)

This course provides instruction about the epidemiological and microbiological characteristics of bacteria, fungi, prions, rickettsia and viruses causing emerging and infectious diseases. Prereq: Graduate student or consent of instructor.