

Handbook for the PhD in EPB (Epidemiology and Biostatistics), College of Public Health, University of Kentucky

The University of Kentucky College of Public Health reserves the right to change, without notice, any programs, policies, requirements or regulations in this Handbook.

This Handbook presents useful information for current students in the PhD EPB program, prospective students, and faculty actively engaged with students. General regulations or policies from the Graduate School for all PhD programs at the University of Kentucky are available in the Bulletin at {<http://www.research.uky.edu/gs/bulletin/bullinfo.shtml>}, and further information of special interest to new students is available from the Resources page at {<http://www.research.uky.edu/gs/GradOrient.html>}. In the event of a conflict between information in this Handbook and regulations or policies from the Graduate School, the latter will take precedence. Questions and comments about the information in this Handbook may be sent to the Director of Graduate Studies (DGS), currently Dr. Richard Charnigo, Associate Professor of Biostatistics and Statistics, College of Public Health Room 203-B, University of Kentucky, Lexington, Kentucky, 40536-0003, 859.257.5678 x82072, {richard.charnigo@uky.edu}.



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I. Background on the PhD EPB Program

A. Intent of Program

The PhD program in Epidemiology and Biostatistics 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. Unlike traditional doctoral preparation in either discipline alone, this program will leverage the unique collaborative environment between the departments of Biostatistics and Epidemiology in the College of Public Health. 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 increasing variety of designs and databases in the public health and medical research domains.

This is intended to be an integrative doctoral program which prepares future researchers who will have substantial methodological and quantitative preparation in the unique domains of these two disciplines. This program is intended to provide advanced, research-oriented training in both theory and methodology. Scholars will be required to undertake a doctoral dissertation, following the completion of required course work and examinations, which will be of the caliber for publication as independent research in respected biostatistical, epidemiological, or statistics journals.

B. Need for Program

There is an increasing need for research-oriented health professionals who will be qualified to conduct population-based research and clinical trials in the next several decades. The production of doctoral-prepared biostatisticians has remained steady while the demand has increased markedly with increasing opportunities in the biomedical research enterprise. At present, there is both a shortage of biostatisticians with some training in biology and disease process knowledge, as well as epidemiologists with an understanding of the new developments in the biostatistics, data management, and clinical trials research. There has been an intense demand for scientifically trained (subject matter) data analysts who can address the issues in conducting studies which include large amounts of complex data. The neurosciences, surveillance, and computational biology are expected to be growth areas which will demand the complex, integrated skill set of a new group of professionals.

C. Target Audience

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 a prior mathematical training to include two semesters of calculus (univariate differential and integral which can be fulfilled by MA 113 and MA 114) and statistical methods (STA 580). 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.

The program will prepare students for research oriented careers in population based studies and clinical research studies including clinical trials. There is a severe shortage of doctoral level graduates with training in Epidemiology and Biostatistics. This program is unique in that students must acquire proficiency in both areas. A terminal master's degree (MS) in Epidemiology is attainable for those who cannot complete the PhD. At the present time, there is no direct admission to the MS in Epidemiology.

D. Competencies for Core Courses

1. Understand the interface between biostatistics and epidemiology.
2. Demonstrate advanced proficiency to apply concepts and methods from these disciplines jointly.
3. Demonstrate the ability to review and critically evaluate the literature in a substantive area of research, be able to identify gaps in knowledge and be able to formulate original research hypotheses or statements.
4. Evaluate the strengths and limitations of epidemiologic reports.
5. Draw appropriate inferences from data.
6. Communicate research results orally and in writing to lay and professional audiences.
7. Demonstrate an understanding of concepts of probability and statistical inference as they apply to problems in public health.
8. Demonstrate proficiency in using computing tools commonly encountered in epidemiology and biostatistics.
9. Understand the principles of epidemiologic study design and be able to calculate the appropriate epidemiologic measures for most typical designs.
10. Become proficient at and be able to evaluate the strengths and limitations of advanced designs including multivariate linear models, generalized linear models, longitudinal models, mixed effects models, and survival models both parametric and nonparametric.
11. Understand the principles of chronic and infectious disease epidemiology.
12. Demonstrate an understanding of research methods used in epidemiology and biostatistics.
13. Demonstrate knowledge of the public health system in the commonwealth and the country.

II. Applying to the PhD EPB Program

Students wishing to apply for admission to the PhD program in Epidemiology and Biostatistics should proceed as follows.

1. Follow all of the Graduate School's instructions to apply online at {http://www.research.uky.edu/gs/gsprocedure_onlineapp.html}. However, please note that the PhD EPB program has its own earlier deadline of 01 February preceding the Fall semester in which the applicant hopes to begin graduate work. The PhD EPB program does not admit students for the Spring or Summer semesters.
2. In addition, please send the following materials directly to the Director of Graduate Studies, currently Dr. Richard Charnigo whose mailing address is on the cover page of this Handbook. Again, the deadline is 01 February preceding the Fall semester in which the applicant hopes to begin graduate work.
 - a. Undergraduate and graduate transcripts -- These should be sealed and sent directly from the registrar's office at the undergraduate or graduate institution. Per the Graduate School at the University of Kentucky, the minimum acceptable undergraduate GPA is 2.75 and the minimum acceptable graduate GPA is 3.00. However, we anticipate that the majority of successful applicants will have GPAs between 3.25 and 4.00.
 - b. GRE scores -- There is no rigid cutoff above which acceptance is guaranteed and below which rejection is ensured. However, we anticipate that the majority of successful applicants will fall between 1000 and 1600 combined verbal and quantitative.
 - c. TOEFL scores (for those who are not native English speakers) -- Per the Graduate School, the minimum acceptable TOEFL score is 550 (paper-based), 213 (computer-based), or 79 (internet-based).
 - d. Three letters of recommendation -- At least one letter should explicitly address the applicant's quantitative skills. All three letters should be current, not for example photocopies of generic support letters written years earlier.
 - e. Statement of purpose -- Describe career and dissertation research interests, along with qualifications for study in this program.
 - f. Please include an explicit statement in the cover letter of how the differential and integral calculus prerequisite has been met or will be met. -- Ordinarily we expect grades of "B" or better in two undergraduate calculus courses. However, we will consider applications from students who have had one undergraduate calculus course if a second course will be taken in the Summer semester preceding the Fall semester in which the applicant hopes to begin graduate work. In this case, an acceptance decision may be contingent upon satisfactory completion of the second course in the Summer semester.
 - g. Please include an explicit statement in the cover letter of whether a research assistant position is desired. -- Identify relevant qualifications, skills, and/or prior experience.

Ordinarily a decision about acceptance or rejection will be communicated to the student by 01 April. Please note, we cannot guarantee that all accepted students who want research assistantships will be offered them.

III. Requirements for the PhD EPB Program

A. Curriculum Overview and Coursework Transfers

Students will complete a minimum of 58 credit hours of study plus dissertation research and the corresponding residency credits. The core curriculum consists of 39 credit hours comprising thirteen courses, including twelve courses in epidemiology and biostatistics, and a one-credit-hour course that will serve as a broad introduction to public health. Students will also complete a minimum of 15 credit hours of electives, including at least two 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. Students will also complete four one-credit-hour seminars within the first three years.

Students with previous graduate coursework may be permitted to transfer a limited amount of credit for that coursework and have some of the above requirements waived. Per the Graduate School, the maximum that can be transferred is 18 credit hours from a previously awarded master's degree and 9 credit hours otherwise. However, the actual amount transferred for a given student will depend on the overlap of that student's previous graduate coursework with the PhD EPB curriculum, the student's performance in that previous graduate coursework, and the student's educational needs as perceived by the DGS and the student's dissertation committee. Hence, transfers will be decided on a case-by-case basis. In particular, there should be no expectation that the actual number of credit hours transferred will equal the maximum allowed by the Graduate School. Transfers will be determined by the DGS and the student's dissertation committee, and they will be subject to final approval by the Graduate School. If the student does not yet have a dissertation committee at the time a transfer is sought, for example when the transfer involves waiving a course ordinarily taken in year 1, then the transfer will be determined by the DGS.

B. Comprehensive Examination

Students will take a written comprehensive examination over selected core courses in the January after completing EPI 714, EPI 716, and BST 761. For full-time students this will ordinarily occur between the Fall and Spring semesters of year 2. The possible outcomes of the comprehensive examination are as follows: PhD pass, in which case the student may continue in the PhD program; MS pass, in which case the student may either complete a terminal MS in Epidemiology or attempt to secure a PhD pass the following January; or, Fail, in which case the student must secure an MS pass or a PhD pass the following January to complete a terminal MS in Epidemiology or continue in the PhD program. In some cases a PhD pass or an MS pass may be accompanied by conditions, for example that the student complete an additional assignment in a specific area. Students will not be permitted more than two attempts at the comprehensive examination.

C. Dissertation Committee and Expectations for Dissertation

Students who have earned a PhD pass on their written comprehensive examination may select any Full Member of the Graduate Faculty for the PhD EPB as a dissertation advisor, provided that the faculty member agrees to serve in that capacity. With approval from the DGS, an Associate Member of the Graduate Faculty for the PhD EPB may serve as dissertation advisor if a Full Member of the Graduate Faculty for the PhD EPB is designated as a co-advisor. Then the student, with approval from the dissertation advisor and DGS, will form a dissertation committee. The dissertation committee will include the dissertation advisor and must simultaneously satisfy all of the following requirements: at least 4 Graduate Faculty in total, at least 3 Full Members of the Graduate Faculty, at least 3 Graduate Faculty from the Epidemiology and Biostatistics departments, at least 1 Graduate Faculty from the Epidemiology department, at least 1 Graduate Faculty from the Biostatistics department, and at least 1 Graduate Faculty outside the Epidemiology and Biostatistics departments.

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 two manuscripts of publishable quality, as well as an integrative literature review of the area of research. 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.

D. Qualifying Examination

Once a student has completed all core courses, made enough progress on the dissertation research to form a coherent dissertation proposal, and obtained permission from the dissertation advisor and DGS to do so, the student and DGS may schedule a qualifying examination with the dissertation committee. The Graduate School must approve the proposed date at least two weeks in advance. The qualifying examination will require the student to furnish the dissertation committee with a written dissertation document in progress (minimum 2 weeks in advance) as well as to prepare slides for an oral presentation describing the student's current progress and the student's proposal to complete the dissertation research (approximately 20-30 slides). During and after the oral presentation, the dissertation committee may ask the student questions about the content of the written dissertation document in progress, the oral presentation, and topics in epidemiology and biostatistics deemed relevant to evaluation of the student's competence to complete the dissertation research. The possible outcomes are Pass and Fail. With permission from the dissertation advisor and DGS, a student whose outcome is Fail may have a second qualifying examination, after remediating deficiencies identified in the first qualifying examination and in a manner consistent with the regulations and policies of the Graduate School. In particular, the second qualifying examination must take place between four and twelve months after the first qualifying examination. A third qualifying examination is not permitted.

E. Residency Requirement

Upon successful completion of the qualifying examination, the student will enroll in the two-credit-hour residency course CPH 767 every Fall and Spring semester until such time as the student completes and successfully defends the dissertation research at the final examination. Alternatively, if the student plans to take the qualifying examination in a given Fall or Spring semester and has the date approved by the Graduate School during the first six weeks of the semester, then the student may begin enrollment in CPH 767 that same semester. The student is required to complete a minimum of two semesters of CPH 767 while working on the dissertation research.

F. Final Examination

Once a student has completed the dissertation research and has obtained permission from the dissertation advisor and DGS to do so, the student and DGS will notify the Graduate School that a final examination with the dissertation committee is desired. The Graduate School must be notified at least eight weeks in advance. The Graduate School will appoint an Outside Examiner to the dissertation committee. The student and DGS will then determine a specific time and date for the final examination, which must be approved by the Graduate School at least two weeks in advance. The final examination will be publicized by the Graduate School and open to any member of the University community. The final examination will require the student to furnish the dissertation committee with a written dissertation document (minimum 3 weeks in advance) as well as to prepare slides for an oral presentation describing the dissertation research (approximately 30-45 slides). During and after the oral presentation, the dissertation committee may ask the student questions about the content of the written dissertation document, the oral presentation, implications of the student's work for science and public health, and opportunities for future research. The possible outcomes are Pass and Fail. A student whose outcome is Pass will need to submit a final version of the written dissertation document to the Graduate School (maximum 60 days after the Pass outcome), taking into account any corrections or suggested changes furnished by the dissertation committee on or before the date of the Final Examination. With permission from the dissertation advisor, DGS, and Dean of the Graduate School, a student whose outcome is Fail may have a second final examination, after remediating deficiencies identified in the first final examination and in a manner consistent with the regulations and policies of the Graduate School. In particular, the second final examination must take place between four and twelve months after the first final examination. A third final examination is not permitted.

G. Timeframes for Qualifying and Final Examinations

There are no rigid timeframes for the qualifying and final examinations, as each student's progress on the dissertation research will vary. We anticipate that most full-time students will take the qualifying examination in the Spring or Summer of Year 3 or Fall of Year 4 and take the final examination in the Spring or Summer of Year 4 or Fall or Spring of Year 5. However, students are bound by Graduate School time limits.

H. Prototypical Plan for Full-Time Student

As noted above, each student's pace on the dissertation research will vary. Nonetheless, because the timing of the coursework will be similar for all full-time students, the following prototypical plan may be informative and helpful for planning purposes.

Year 1

Fall

CPH 605 Intro Epidemiology (3)
BST 675 Biometrics I (4)
BST 639 Computing Tools (3)
CPH 786 Doctoral Seminar (1)

Winter

Review material from courses taken so far in anticipation of comprehensive examination

Spring

CPH 712 Advanced Epidemiology (3)
BST 676 Biometrics II (4)
BST 760 Advanced Regression (3)
CPH 786 Doctoral Seminar (1)

Summer

Review material from courses taken so far in anticipation of comprehensive examination

Year 2

Fall

EPI 714 Epidemiologic Study Design (3)
BST 761 Time to Event Analysis (3)
EPI 716 Infectious Disease Epidemiology (3)
CPH 701 Introduction to Public Health (1)

Winter

Comprehensive examination
Choose dissertation advisor

Spring

EPI 715 Research Methods in Epi & Bio (3)
BST 762 Longitudinal Data Analysis (3)
CPH 711 Chronic Disease Epidemiology (3)
CPH 786 Doctoral Seminar (1)
Form dissertation committee

Summer

Begin dissertation research

Year 3

Fall

Elective (3)

Elective (3)

Elective (3)

Continue dissertation research

Winter

Continue dissertation research

Spring

Elective (3)

Elective (3)

CPH 786 Doctoral Seminar (1)

CPH 767 Residency Credit (2)

Qualifying examination

Summer

Continue dissertation research

Year 4

Fall

CPH 767 Residency Credit (2)

Continue dissertation research

Winter

Continue dissertation research

Spring

CPH 767 Residency Credit (2)

Final examination

Submit final version of written dissertation document to Graduate School

I. Prototypical Plan for Part-Time Student

Here is one possible plan for a part-time student. However, each part-time student should consult with the DGS because not all part-time students will have the same needs.

Year 1

Fall

BST 675 Biometrics I (4)

BST 639 Computing Tools (3)

CPH 786 Doctoral Seminar (1)

Winter

Review material from courses taken so far in anticipation of comprehensive examination

Spring

BST 676 Biometrics II (4)

BST 760 Advanced Regression (3)

CPH 786 Doctoral Seminar (1)

Summer

Review material from courses taken so far in anticipation of comprehensive examination

Year 2**Fall**

CPH 605 Intro Epidemiology (3)

BST 761 Time to Event Analysis (3)

CPH 701 Introduction to Public Health (1)

Winter

Review material from courses taken so far in anticipation of comprehensive examination

Spring

CPH 712 Advanced Epidemiology (3)

BST 762 Longitudinal Data Analysis (3)

CPH 786 Doctoral Seminar (1)

Summer

Review material from courses taken so far in anticipation of comprehensive examination

Year 3**Fall**

EPI 714 Epidemiologic Study Design (3)

EPI 716 Infectious Disease Epidemiology (3)

Winter

Comprehensive examination

Choose dissertation advisor

Spring

CPH 711 Chronic Disease Epidemiology (3)

EPI 715 Research Methods in Epi & Bio (3)

CPH 786 Doctoral Seminar (1)

Form dissertation committee

Summer

Begin dissertation research

Year 4**Fall**

Elective (3)

Elective (3)

Continue dissertation research

Winter

Continue dissertation research

Spring

Elective (3)

Elective (3)

Continue dissertation research

Summer

Continue dissertation research

Year 5**Fall**

Elective (3)

CPH 767 Residency Credit (2)

Qualifying examination

Winter

Continue dissertation research

Spring

CPH 767 Residency Credit (2)

Continue dissertation research

Summer

Continue dissertation research

Year 6**Fall**

CPH 767 Residency Credit (2)

Continue dissertation research

Winter

Continue dissertation research

Spring

CPH 767 Residency Credit (2)

Final examination

Submit final version of written dissertation document to Graduate School

J. Descriptions of Core and Elective Courses

Core courses

- BST 675 Biometrics I (4) This course, the first of a two-semester sequence in biometrics, introduces probability, discrete random variables, continuous random variables, and sampling distributions.
- BST 676 Biometrics II (4) This course, the second of a two-semester sequence in biometrics, introduces techniques for constructing and evaluating point estimators, hypothesis testing procedures, and interval estimators.
- CPH 605/
PM 720 Epidemiology (3) In this course students are taught the principles and methods of epidemiologic investigations, research methodology, and statistical integration. Major topics include etiologic factors of disease and injury, the distribution of health problems within populations, levels of prevention, and the concept of risk. The design of retrospective, cross-sectional and prospective studies are examined to illustrate odds ratio, relative risk, life tables, and person-years. Students are required to complete and submit a research proposal, present a topic paper, and serve as a co-facilitator for an article discussion.
- CPH 712 Advanced Epidemiology (3) Provides an in-depth understanding of the evidence needed to show causal relationships and epidemiologic theories, concepts and tools used to establish causal relationships.
- BST 639/
CPH 639 Computing Tools (3) Intro to statistical and epidemiologic software technologies commonly used for the collection, management, and analysis of data. It is designed to prepare first year students for further coursework and dissertation research.
- BST 760 Advanced Regression (3) This course provides an introduction to theoretical methods and applications of linear and generalized linear models. Regression methods for normally distributed outcomes will provide a discussion of experimental design, design matrices, and modes of parametric inference for the linear model. Students will learn to apply these concepts in sophisticated data analysis where they will implement tools for model building and selection, variable selection, and handling categorical predictors, confounders and interactions. Additionally, students will learn polynomial regression and flexible alternatives such as weighted least squares and robust, ridge and nonparametric regression. Regression methods for non-normal outcomes (focusing on binomial and count data) will be covered in detail, providing students with foundational tools for understanding and implementing generalized linear models that are commonly used to analyze epidemiologic and public health data from various study designs including but not limited to cohort, case-control, and clinical trials.

- BST 761 Time to Event Analysis (3) Analysis of time to event data encountered in Public Health and Medicine. Survival distributions and hazard functions. Time to event analysis using Kaplan-Meier method and life-table method. Accelerated failure time model, logit model for discrete data, complementary log-log model, and proportional hazards model. Tests for goodness-of-fit, graphical methods, and residual and influence statistics. Time-dependent covariates, non-proportional hazards, left truncation, and late entry into the risk set. Sample size and power, competing risks, and time to event analysis with missing data.
- BST 762/
STA 632 Longitudinal Data Analysis (3) This course presents statistical techniques for analyzing longitudinal studies and repeated measures experiments that occur frequently in public health, clinical trials, and outcomes research. This course will cover linear mixed models, generalized linear mixed models and an introduction to nonlinear models as they apply to the analysis of correlated data.
- EPI 715 Research Methods in Epidemiology & 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.
- 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 designing multilevel studies. Finally, we will consider recent advances in experimental epidemiology with consideration of controlled community trials.
- CPH 711 Chronic Disease Epidemiology (3) Provides students with an overview of the risk factors associated with the most common chronic diseases, data sources available about these diseases and epidemiologic theories, concepts and tools associated with these diseases.

EPI 716 Infectious Disease Epidemiology (3) Emphasizes the epidemiological and microbiological methods used to study infectious diseases including new, emerging, and re-emerging diseases. Include are the history, epidemiologic concepts and tools needed to understand and investigate the maintenance, transmission, and effects of infectious disease in human populations.

CPH 701 Current Issues in Public Health (1) This seminar course will introduce MS and PhD students to the critical role of public health in protecting, maintaining, and improving the health of the population. Specific emphasis will be directed to the “Ten Essential Functions of Public Health” through weekly lectures, readings, and writing assignments. All five core areas of public health will be introduced

Electives

CPH 631 Design and Analysis of Health Surveys (3) Design and analysis issues associated with well known national health surveys, including reliability and validity of measurements, instrument validation, sampling designs, weighting of responses, and multiple imputations. Students will learn how to use statistical software to analyze data from complex survey designs.

CPH 636 Data Mining in Public Health (3) This course concerns statistical techniques for and practical issues associated with the exploration of large public health data sets, the development of models from such data sets, and the effective communication of one’s findings.

BST 740 Spatial Statistics (3) This course covers the following topics: risks and rates, types of spatial data, visualizing spatial data, analysis of spatial point patterns, spatial clustering of health events based on case control studies, and based on regional counts, linking spatial exposure data to health events through regression modeling, Bayesian spatial analysis.

BST 763/
STA 665 Analysis of Categorical Data (3) Multinomial and product-multinomial models; large-sample theory of estimation and testing, Pearson chi-square and modified chi-square statistics, Pearson-Fisher Theorem, Wald Statistics and generalized least squares technique; applications to problems of symmetry, association and hypotheses of no interaction in multi-dimensional contingency tables.

BST 713/
STA 653 Clinical Trials (3) Design and analysis of Phase I-III clinical trials, interim monitoring of trials, sample size, power, crossover trials, bioequivalency, mixed models, and meta analysis.

- BST 764 Applied Statistical Modeling for Medicine and Public Health (3) This course introduces some useful statistical models not typically encountered in the core courses of a master's or doctoral biostatistics curriculum. These include finite mixture models, nonparametric regression models, covariance-based models, and stochastic models.
- BST 765 Missing Data Methodology for Public Health (3) This course surveys methods for analyzing data with missing observations. This includes methods for data missing completely at random including hot deck cold deck, mean substitution, and single imputation; methods for data missing at random including multiple imputation and weighted estimating equations and methods for data missing not at random including pattern mixture models, selection models, and shared random effects models.
- BST 766 Analysis of Temporal Data in Public Health (3) This course surveys methods for analyzing public health data collected over time. Methods covered include smoothing time series data, the modeling of stationary time series for Gaussian, dichotomous, and case count responses, methods for detecting the clustering of disease over time, and methods for the surveillance of infectious diseases in real time.
- BST 701 Bayesian Modeling in Biostatistics (3) This course provides an introduction to Bayesian ideas and data analysis applied to the biosciences. The course illustrates current approaches to Bayesian modeling and computation in biostatistics.
- CPH 610 Injury Epidemiology (3) Describes the distribution and determinants for traumatic injury and poisonings, including both intentional and unintentional events. Topics include: sources of data, methodological approaches to studying injuries, evaluation of injury interventions, and the link between epidemiology and public health policy impacting injuries.
- CPH 614 Managerial Epidemiology (3) Reviews the fundamental principles of epidemiology and teaches students how to apply these principles to the management of health service organizations.
- CPH 616 Cardiovascular Epidemiology (3) Provides students with an overview of the risk factors associated with cardiovascular disease. Also teaches students about variations in the frequency of risk factors and in the rates of cardiovascular disease by characteristics of person, time and place.

- CPH 617 Environmental and Occupational Epidemiology (3) Provides students with an understanding of occupational and environmental exposures and their associations with specific health effects, and with the application of epidemiologic concepts and methods to describe and analyze these associations. Combines lectures on exposure assessment, study design and methodological issues, as well as discussion and presentation of topics focused on specific outcomes and exposures.
- CPH 662 Public Health Response to Terrorism & Disasters (3) Focuses on public health concepts, history, methods, planning and response preparedness in response to a Weapons of Mass Destruction (WMD) terrorist attack, in both the nation and Commonwealth of Kentucky. Will discuss how public health methods can be applied to response planning and preparedness for such a bioterroristic WMD attack and improve the public health and medical infrastructure for response to natural disasters. Public health response includes surveillance of disease and laboratory reports for evidence of WMD attack, as well as epidemiological review of suspicious cases of illness potentially related to biological or chemical weapons.
- CPH 718 Special Topics: Decision-Making in Health and Medicine (3) This course applies decision science theory to healthcare decision making. It is intended for epidemiologists, managers, and health behaviorists who want to understand the process of rational decision-making. Topics include (1) managing uncertainty, (2) treatment decisions, (3) valuing healthcare outcomes, (4) diagnostic test decisions, (5) prevention and screening, (6) tests with multiple outcomes, (7) cost-effectiveness, cost-benefit, and cost-utility analysis, and (8) modeling events that reoccur over time.
- CPH 718 Special Topics: Oral Health Epidemiology (3) This course describes the concepts and principles of oral health epidemiology. The purpose is to use epidemiology principles and concepts and apply them to oral health related questions. This is an advanced, 700 level course, and will be intense. Although basic and intermediate/ advanced principles of epidemiology, biostatistics and oral biology will be reviewed early in the course, students are expected to have good working knowledge of these subject areas. Students are not expected to have a background in dentistry, but their biology, math and critical thinking abilities are expected to be worthy of the level of this course. The course includes discussions of the theory and methods of epidemiology, biostatistics and biology, sociology and philosophy and their applications to oral health.

- CPH 718 Special Topics: Cancer Epidemiology (3) This course applies and integrates the principles and tools of epidemiology to the study of cancer. The course includes discussion of the burden of various kinds of cancer across the United States and the world by age, gender, and race/ethnicity, the underlying biology behind the development of cancer in humans, cancer surveillance, the epidemiology of various kinds of cancer by category of major risk factors such as human behavior (e.g. smoking and alcohol use), endogenous/exogenous hormones, viruses, environmental/occupational, and diet, and sources of data and methods for evaluating cancer screening, measuring the impact of risk factors, determining the incidence of cancer and cancer clusters, measuring patterns of care, and understanding the determinants of survival.
- CPH 718 Special Topics: Cancer Molecular Epidemiology (3) This course will consist of lectures relating to the principles of molecular epidemiology, cancer prevention, and control. Lectures include: Biomarker Discovery using proteomic techniques, Cancer Screening, Genomics and Pharmacogenomics, Cancer susceptibility: Single Nucleotide Polymorphisms and DNA Damage and DNA Mismatch Repair Genes, Cancer Risk Assessment, Cancer Diagnosis and Prognosis, Cancer Theragenosis, and Transitional Studies: Biospecimens and Bioinformatics.

IV. Academic Matters

A. Student Responsibility for Graduate School Bulletin

While this Handbook presents useful information about particulars for the PhD EPB program, reviewing this Handbook does not relieve students of their responsibility to become familiar with the Graduate School Bulletin. In particular, the Graduate School will not waive a regulation or policy simply because a student was unaware of it.

B. Course Load

Prior to enrollment in CPH 767, full-time status during the Fall or Spring semester entails a course load of at least 9 credit hours. If a student falls below 9 credit hours as a result of dropping or failing a course, then the student will be reclassified as part-time for that semester, which may have implications for financial aid and/or legal status in the case of an international student. Ordinarily a student will not enroll for more than 12 credit hours. A request for an exception may be presented to the DGS, who if in agreement with the request will present it to the Dean of the Graduate School. We do not anticipate that students in the PhD EPB program will take any courses during the Summer.

C. Scholastic Probation and Good Progress

A student whose cumulative grade point average falls below 3.00 after completing 12 or more credit hours will be placed on scholastic probation by the Graduate School. Such a student must restore the grade point average to 3.00 or above within the next 9 credit hours. Otherwise the student will be dismissed by the Graduate School but may apply for readmission at a later date. Students on scholastic probation are ineligible for fellowships, tuition scholarships, qualifying examinations, and final examinations.

The EPB PhD program defines a student as making good progress who meets all of the following criteria: cumulative grade point average of 3.00 or above; no grade of “E” or “U”; at most one grade of “I” remaining to be resolved; at most one grade of “C”; at most one grade of “W”; comprehensive examination passed at PhD level if taken; qualifying examination passed if taken; final examination passed if taken; Graduate School time limits not exceeded. Students not making good progress may be required to complete certain remedial activities within a specified timeframe. Failure to complete the remedial activities may result in a recommendation to the Graduate School for dismissal from the program. In addition, students with research assistantships not making good progress are at risk for not having the research assistantships renewed for the following year.

D. Graduate School Time Limits

A student must take the qualifying examination within five years of entry into the program. A student must pass the final examination and submit a final version of the written dissertation document to the Graduate School within five years of taking the qualifying examination. Requests for extensions may be made to the DGS, who in agreement with the requests will bring them to the Dean of the Graduate School.

E. Advising

Initially the DGS will be the student’s academic advisor. After the student has passed the comprehensive examination at the PhD level, the student will select a dissertation advisor who then becomes the student’s academic advisor. The dissertation advisor may be any Full Member of the Graduate Faculty for the PhD EPB, provided that the faculty member agrees to serve in that capacity. With approval from the DGS, an Associate Member of the Graduate Faculty for the PhD EPB may serve as dissertation advisor if a Full Member of the Graduate Faculty for the PhD EPB is designated as a co-advisor.

To maintain quality and pace in dissertation research, a student is encouraged to meet regularly with the dissertation advisor (at least once a month) to review progress on the dissertation research. Likewise, a student is encouraged to meet occasionally with the entire dissertation committee (at least twice a year).

A student who wishes to change the dissertation advisor, once chosen, should present this request to the DGS. A student who wishes to change the dissertation committee, once chosen, should present this request to both the DGS and the dissertation advisor.

F. Appeals

Students having a grievance about any aspect of the program, or wishing to appeal some decision, should first approach the DGS. If the DGS cannot resolve the issue, or if the student is dissatisfied with how the DGS resolves the issue, then the student may take it to the Associate Dean of Academic Affairs at the College of Public Health. If the Associate Dean cannot resolve the issue, or if the student is dissatisfied with how the Associate Dean resolves the issue, then the student may take it to the Academic Ombud of the University. If the Academic Ombud cannot resolve the issue, or if the student is dissatisfied with how the Academic Ombud resolves the issue, then the student may take it to the University Appeals Board.

V. Financial Aid

We anticipate that each year a limited number of research assistantships will be available to full-time students. Prospective students applying to the PhD EPB program should explicitly indicate in their cover letters whether they are interested in research assistantships for their first year in the program if accepted. Current students should inform the DGS by 01 February whether they are interested in research assistantships for the following year. Among current students, priority will be given to those who are making good progress in the program and who have fulfilled research assistant duties well in the past. We do not guarantee that all students desiring research assistantships will be offered them. The terms for a research assistantship may vary from year to year. For 2009-2010 they are as follows.

Duration: 16 August 2009 to 15 August 2010

Stipend: The research assistant will be paid \$16,000. This will be subject to taxation.

Tuition: This will be paid for the research assistant (Fall and Spring semesters only).

Student Health Insurance: This will be paid for the research assistant.

Fees: The research assistant will still be responsible for the health and recreation fees.

Duties: The research assistant will render aid to faculty, research staff, and/or students for up to 20 hours a week as specified by a faculty supervisor appointed by the DGS.

Vacation: The University of Kentucky honors a number of holidays throughout the year. In weeks where there are such holidays, the expected number of hours to be worked by the research assistant will be decreased proportionately. Also, the research assistant may arrange two full weeks of vacation at times agreeable to the research assistant, faculty supervisor, and DGS.

Travel Allowance: Due to new legal requirements, there will be no travel allowance.

Additional Employment: With approval of the DGS, Associate Dean of Academic Affairs, and the Graduate School, the research assistant may seek additional employment on campus (up to 20 hours per week) for extra income between 15 May 2010 and 15 August 2010. If the research assistant finds such additional employment, compensation will be on an hourly basis at a rate agreeable to the research assistant and the employer.

VI. Some University and College Policies

A. Student Responsibility for Program Regulations

The student is responsible for keeping informed about regulations and procedures for the course of study being pursued. In no case will a regulation be waived or an exception granted because a student pleads ignorance of the regulation or asserts that information was not presented by advisors or other authorities. Therefore, the student should become familiar with this Handbook and all other materials disseminated by the DGS, College, or University that pertain to regulations and procedures for the PhD EPB program.

The DGS should be consulted concerning course requirements, any deficiencies, the planning of a program, and special regulations and degree requirements that may not be listed in the Graduate School Bulletin or this Handbook.

B. Confidentiality and Disclosure

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

1. academic advising;
2. writing a letter of recommendation requested by the student;
3. selecting students for honorary organizations;
4. informing community-based faculty members serving as preceptors to improve the quality benefit to each rotation;
5. responding to directive pursuant to law or court order.

C. Diversity

The College and the University strive to develop an environment where the value of diversity among students, faculty, and staff is accepted, encouraged, and embraced. Diversity encompasses differences in age, ethnicity, gender, national origin, race, religion, sexual orientation, socioeconomic background, and unique individual style. The individual characteristics, talents, and contributions of all people are valued and recognized for the unique contribution they make to our school.

D. Equal Educational and Employment Opportunities

All applicants to the University meeting the appropriate academic requirements and technical standards will be considered equally for admission to any academic program thereof regardless of race, color, national origin, religion, sex, marital status, age, or disability. The University is an Equal Opportunity Employer; no applicant or employee will be discriminated against because of race, color, religion, sex, or national origin.

E. Disabilities (Physical, Mental, and/or Learning)

The University is committed to meeting its obligations pursuant to Section 504 of the Rehabilitation Act of 1973, as amended, and the Americans with Disabilities Act of 1990, as amended. An individual with a disability is defined as someone who has "a physical or mental impairment that substantially limits one or more of the major life activities of such individual." Any student who has such a disability and seeks special accommodations from the University must notify the Admissions/Academic Affairs Office of the College of that disability, in writing, preferably before the beginning of the school year, but in no case later than the third day of classes for the Fall semester. If a disability develops during the school year for which accommodations are requested, the student must notify the Admissions/Academic Affairs Office, in writing, as soon as the student becomes aware of the disability. The student will be required to provide current documentation of the condition for which the student requires accommodation to the University Disability Resource Center. Notification of the condition and request for special accommodation will be referred to the same office. Requests for accommodation and documentation will be kept confidential but may be disclosed in the provision of accommodation. The Disability Resource Center will base provision of services to accommodate disabilities upon a review of current medical or psychological documentation and an assessment of current needs and appropriate services. The Disability Resource Center in the University Office of the Dean of Students may be reached at (859) 257-2754. In order to ensure that a student understands the information presented here before he or she enrolls, the school requires each student to sign a document to that effect.

F. Drug Free Institution

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

G. University Academic Ombud

The Office of Academic Ombud Services is responsible for helping students and instructors work through and resolve academic related problems and conflicts. The major arenas of activity for the Academic Ombud include both Student Academic Rights and Academic Offenses. The primary focus of Academic Ombud Services is the process by which decisions are made, and the primary task of the Ombud is to ensure fair policies, processes, and procedures that are equitably implemented. Thus, the Academic Ombud is a neutral party working as an advocate for fairness and equity, {http://www.uky.edu/Ombud/reminder_enrollment.php}.

The University Academic Ombud is located at 109 Bradley Hall and may be reached at phone (859) 257-3737, fax (859) 257-5346, or email {ombud@uky.edu}.

H. Smoke Free Environment

On April 22, 2008, the University Board of Trustees gave final approval to the revised version of the University policy that outlines the University's smoke-free policy. This effectively states that as of Nov. 20, 2008, UK HealthCare has made the commitment that there will be no tobacco use permitted in or on any UK HealthCare facility or grounds.

I. Class Attendance

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

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

J. Inclement Weather

Occasionally there may be a cancellation of classes due to inclement weather. The Executive Vice President for Finance and Administration makes the decision for the cancellation of classes or closing of offices in such an event. Announcements of cancellation or delay of classes normally will be made by 6 a.m. through the local media. The latest information will be on the UK Infoline at 257-5684, on WUKY, or through the campus network. Students participating in an off-site experience will follow the cancellation/closing policies of the agency/clinic/company where they are assigned.

K. Medical Center ID Badges

All students enrolled in one of the Medical Center colleges should have a picture identification badge. They should be worn any time the student is in the Medical Center area. Since some PhD EPB courses may be scheduled for the late afternoon or evening, the chance for intervention by Medical Center Security increases. The hours for getting a photograph taken are Monday through Friday, 9:00 a.m. to 1:00 p.m., 5:00 p.m. to 8:00 p.m., and 3:00 a.m. to 7:00 a.m., and Saturday and Sunday, 9:00 a.m. to 4:00 p.m., in room H105 of the Hospital, telephone 323-6946, {<http://www.uky.edu/Police/MCS/mcbadges.html>}.

L. Student ID Badges

Student Identification Badges (U.K.I.D.) may be used for a variety of services on campus (copying services, athletic events, library use, etc.). These can be obtained from the University of Kentucky I.D. office, 107 Student Center. Their hours of operation are 9 a.m.-5 p.m., Monday through Friday, telephone 257-1378.

M. Library Resources

The University Libraries house over two million volumes and rank among the largest in the South and Midwest. The Government Publications Department, a Federal Depository, contains documents relating to municipal, state, and national topics. The system also includes Special Collections and individual libraries of Medicine, Business, Economics, and Law. The University recently opened the W.T. Young Library, a multi-million dollar, state-of-the-art central library. Public health students may also use the library sources in the Health Sciences Learning Center (College of Nursing) and the Medical Science Building. See {<http://www.mc.uky.edu/medlibrary>} for updates and information on training.

N. Computing Services

The Communications and Network Systems offer Student Computing Services at thirteen computer labs on campus. Nearby labs are located in the College of Nursing, 6th floor, and the W. T. Young Library.

Students can access information about these sites and other labs on campus by visiting {http://www.uky.edu/IS/CNS/if_scs.html}.

O. University E-Mail

All College students must establish a University e-mail address and provide it to the Admissions/Student Affairs Office. All electronic correspondence from the College to a student will be sent to the University e-mail address. To establish a University e-mail address, please go to {<http://www.uky.edu/email>} and follow the directions.

Students may report problems with their e-mail addresses to the Customer Service Center, 111 McVey Hall, telephone 257-1300, {<http://www.uky.edu/IT/CustomerService/contact.php>}.

P. Conference Rooms

The College has two large conference rooms (#115 and #202) suitable for classes, qualifying or final examinations, and meetings. To reserve, contact Becki Flanagan, (859) 218-2092, or Sharon Keys, (859) 218-2043.

Q. Dress Code

This policy is designed to provide a reasonable standard of dress and appearance for public health students. If a faculty member deems a particular student's attire to be inappropriate, according to the guidelines below or according to the class syllabus, he or she may notify the student privately at any time before, after, or outside of class and ask the student to correct the problem.

General

- All students should maintain a clean, neat appearance at all times, and students' attire should be commensurate with the activities in which the students will participate during that day.
- An instructor may set forth additional standards of attire in his or her syllabus.

Practice Settings

All students should dress in accordance with Medical Center Standards for Dress and Appearance when participating in patient-oriented activities or during field practicum experiences.

R. Electronic Devices

Out of respect for classmates and faculty, all students are asked to function in a professional manner regarding the use of electronic devices during class sessions. Cell phones, pagers, etc., are disruptive to classroom activities and must be deactivated upon entering the classroom.

S. University Health Services

University Health Services provides medical treatment for full- and part-time students. See {<http://www.uky.edu/StudentAffairs/UHS/index.htm>} for policies and procedures.

T. Confidentiality of Student Records, Addresses, and Rosters

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

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

The University telephone book provides student and faculty telephone numbers and electronic mail listings, as well as a directory of University service providers. For a current copy of the University telephone book, which is published by the Student Government Association (SGA), go to the SGA office, located in the basement of the Student Center, after the beginning of the Fall semester.

Students are required to make changes in their telephone and/or address listings with the Registrar's office if they move during the semester. For more information, call 257-3161.

Students can use the University website to access important information, including grades, student schedules, and registration information. Students can also update their addresses and other information. See {<https://myuk.uky.edu/irj/portal>}.

U. University Senate Policy 6.3.0 on Academic Offenses

“Students shall not plagiarize, cheat or falsify, or misuse academic records.” (US: 3/7/88; 3/20/89)

V. University Senate Policy 6.3.1 on Plagiarism

“All academic work, written or otherwise, submitted by students to their instructors or other academic supervisors, is expected to be the result of their own thought, research or self-expression. In cases where students feel unsure about a question of plagiarism involving their work, they are obliged to consult their instructors on the matter before submission. When a student submits work purporting to be his/her own, but which in any way borrows ideas, organization, wording or anything else from another source without appropriate acknowledgment of the fact, the student is guilty of plagiarism.

“Plagiarism includes reproducing someone else's work, whether it be a published article, chapter of a book, a paper from a friend or some file, or from some other source. Plagiarism also includes the practice of employing or allowing another person to alter or revise the work, which the student submits as his/her own, whomever that other person may be. Students may discuss assignments among themselves or with an instructor or tutor, but the student alone must do the actual work.

“When a student's assignment involves research in outside sources or information, the student must carefully acknowledge exactly what, where and how he/she has employed them. If the words of someone else are used, the student must put quotation marks around the passage in question and add an appropriate indication of its origin. Making simple changes while leaving the organization, content and phraseology in tact is plagiaristic. However, nothing in these rules shall apply to those ideas that are so generally and freely circulated as to be a part of the public domain.”

W. University Senate Policy 6.3.2 on Cheating

“Cheating is defined by its general usage. It includes, but is not limited to, the wrongfully giving, taking or presenting any information or material by a student with the intent of aiding himself/herself or another on any academic work which is considered in any way in the determination of the final grade. Any question of definition shall be referred to the University Board of Appeals.”

X. University Senate Policy 6.3.3 on Academic Records

“Maintaining the integrity, accuracy and appropriate privacy of student academic records is an essential administrative function of the University and a basic protection of all students. Accordingly, the actual or attempted falsification, theft, misrepresentation or other alteration or misuse of any official academic record of the University, specifically including knowingly having unauthorized access to such records, is a serious academic offense. As used in this context, "academic record" includes all paper and electronic versions of the partial or complete permanent academic record, all official and unofficial academic transcripts, application documents and admission credentials, and all academic record transaction documents. The minimum sanction for falsification or attempted falsification or other misuse of academic records as described in this section is suspension for one semester.”