
Doctor of Philosophy in Public Health Sciences Specialization in Epidemiology

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Website: <http://louisville.edu/sphis/deph/academics.html>

Introduction

The specialization in epidemiology in the Ph.D. program in public health sciences is designed to develop academic researchers in population-based epidemiology.

Competencies

To graduate, students in the Ph.D. specialization in epidemiology must be able to demonstrate the following competencies:

- Explain the evolving paradigms of epidemiologic theory and study design and their impact on public health and medical sciences
- Critically evaluate scientific literature on an epidemiologic problem to identify strengths and limitations, biases and gaps in knowledge
- Formulate epidemiologic research questions and testable hypotheses
- Apply epidemiologic study designs for specific research hypotheses
- Apply computer software for data management and analysis
- Design and apply methods for data collection and management for epidemiologic research
- Apply advanced quantitative methods to analyze an epidemiologic problem
- Integrate cross-disciplinary knowledge from molecular to population levels to make appropriate causal inferences
- Communicate in written and oral presentations epidemiologic concepts and findings to diverse audiences
- Demonstrate mastery of a substantive area of epidemiology
- Complete an hypothesis-based epidemiologic research study suitable for publication in a peer-reviewed journal

In greater detail, a PhD student must specifically demonstrate:

- In depth knowledge of the history and philosophy of epidemiology
- Mastery of experimental and observational study designs and the ability to identify optimal designs for specific hypotheses
- Ability to develop and apply:
 - Questionnaires

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- Biomarkers for health status, exposure and susceptibility
- Mastery of multivariable analytic methods for evaluating risk and prognosis
- Ability to critically evaluate the published epidemiologic research
- Expertise in one or more epidemiologic specialties such as nutritional, molecular, clinical, genetic, cancer, or chronic disease epidemiology
- Practical knowledge of issues in research management including:
 - Formation and leadership of multidisciplinary teams
 - Staffing, budgeting, tracking
 - Subject recruitment and retention
 - Data quality control and data safety management
 - Funding mechanisms and grantsmanship
 - Research ethics and regulations
- Professional quality peer-review, oral and poster presentation, report, grant, and manuscript writing
- Mentoring of junior peers
- Development, conduct, completion and defense of a dissertation on an original research project

Competencies are demonstrated by passage of the proficiency and candidacy examinations, by successful mentoring of master's students or doctoral students not yet in candidacy, and by successful completion and defense of the dissertation.

Admission

Students who have satisfactorily completed the M.S. degree in epidemiology are eligible for the Ph.D. specialization in epidemiology. Students who have satisfactorily completed a masters degree in a relevant discipline (for example MPH, MBBS) or other advanced degree (for example, MD or DO) may be accepted into the Ph.D. in Public Health Sciences Specialization in Epidemiology pending evaluation of appropriate training, experience, and coursework. Previous coursework in mathematics and/or statistics and biological or health sciences (for example, biology, biochemistry, anatomy, physiology, microbiology) is strongly recommended.

The following are required for admission:

- Formal application through the UofL Graduate School with transcripts and curriculum vitae
- A one-page personal statement describing the applicant's background and interest in epidemiology
- Two letters of recommendation
- Undergraduate GPA at least 3.0 on 4.0 scale
- Official GRE scores taken within the past five years. Scores greater than the 50th percentile on each of the quantitative and verbal sections are recommended.
- If applicable, Test of English as a Foreign Language (TOEFL) score in at least 60th percentile

Curriculum

Faculty Advisor

Upon admission to the specialization, each student is assigned a faculty advisor who works with the student to develop a program of study.

Degree Requirements

The Ph.D. specialization in epidemiology is designed to consist of 50 credit-hours of coursework over a minimum of two years plus one to four years for completion of the dissertation. The coursework is organized into two blocks of 26 and 24 credit-hours. The curriculum outlined below represents an *ideal* sequence for a full-time student. A part-time student may need to deviate from this sequence. Completion of the first block of coursework is prerequisite for sitting for the proficiency examination. After passing the proficiency examination, the student can proceed with the second block of coursework. Successful completion of the second block is prerequisite to sitting for the candidacy examination. After passing the candidacy examination, the student is admitted to doctoral candidacy. A doctoral candidate must then successfully develop and defend a dissertation proposal that describes an original and independent research project. Upon successful defense of the proposal, the student may then proceed to dissertation research. Upon successful completion of the research, oral defense of the dissertation, and demonstration of the required competencies listed above, the student is awarded the Ph.D. degree.

Coursework

50 total credit hours (beyond admission requirements) consisting of the following:

- 20 credit-hours of required courses
- 9 credit-hours of seminars in epidemiology
- 21 credit-hours of elective/selective/independent study courses

Required Coursework			
Semester	Course #	Course Title	Credit Hours
BLOCK 1			
Fall I	PHEP-621	Statistical Foundations for Epidemiology	3
	PHEP-622	Population Pathology	3
	PHEP-623	Theoretical Foundations of Epidemiology	3
	PHEP-648	Data Management and Analysis for Epidemiology I	1
	PHEP 750	Seminars in Epidemiology	3
	Semester Total		
Spring I	PHEP-xxx or PHxx-xxx	Content Course Electives* or Public Health Selectives**	6
	PHEP-618	Epidemiologic Methods II	3
	PHEP-649	Data Management and Analysis for Epidemiology II	1
	PHEP 750	Seminars in Epidemiology	3
	Semester Total		

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Block 1 Total			26 ¹
PROFICIENCY EXAM			
Summer I	PHEP-778	Doctoral Independent Study *** (optional)	3 to 6
BLOCK 2			
Fall II	PHEP-701	Advanced Epidemiologic Methods	3
	PHEP-702	Epidemiologic Research Management	3
	PHEP-xxx or PHST-xxx	Content Course Elective* or Biostatistics Selective**	3
	PHEP 750	Seminars in Epidemiology	3
	Semester Total		12
Spring II	PHEP-xxx	Content Course Elective*	3
	PHEP-xxx or PHST-xxx	Content Course Elective* or Biostatistics Selective**	3 to 6
	PHEP-778	Doctoral Independent Study	3 to 6
Semester Total		12	
Block 2 Total			24
Degree Total			50 ²
CANDIDACY EXAM			

Note that students who have completed the MS degree and have been accepted to the PhD program will advance to Block 2 of the PhD curriculum upon matriculation. These students will still be required to complete the Seminar and Content Course Electives credits listed in Block 1.

*Content Course Electives consist of courses specialized in either an exposure or disease category and offerings will vary from semester to semester based upon faculty workloads and student programs of study. These may include:

- PHEP 607 Epidemiology of Cancer
- PHEP 611 Nutritional Epidemiology
- PHEP 613 Epidemiology of Aging
- PHEP 615 Maternal Child Health
- PHEP 620 Environmental Epidemiology
- PHEP 624 Reproductive Epidemiology
- PHEP 625 Child Health & Development
- PHEP 626 Social Epidemiology

** PHxx Public Health Selectives may be an offering from another SPHIS department. PHST xxx Biostatistics Selectives should be restricted to advanced courses such as PHST-684 Categorical Data Analysis, PHST-683 Survival Analysis, PHST-750 Bioinformatics. These selectives are subject to instructor permission. Students must discuss their choices with their advisor and rationalize them with respect to their program of study which must be approved by the Program Director.

¹A minimum of 26 credits of coursework is required before taking the Proficiency Exam.

²A minimum of 50 credits of coursework is required before taking the Candidacy Exam.

Proficiency Examination

Upon successful completion of the first block of required coursework, the student is eligible to sit for the written proficiency examination, which is administered by a committee of departmental faculty appointed by the chair. The timing of the proficiency examination is determined by the student's faculty advisor and the department chair. The subject matter includes basic knowledge of disease biology and pathophysiology; theory and skills in epidemiologic research methods, including study design and management; and quantitative analytic methods. A student who does not successfully pass the proficiency examination is allowed a second opportunity to pass the exam. Failing the proficiency examination the second time results in dismissal from the program.

Candidacy Examination

After passing the proficiency examination and upon completion of the second block of coursework, the student is eligible to sit for the written and oral candidacy examination, which is administered by a committee appointed by the department chair and composed of graduate faculty. The subject matter includes knowledge of advanced epidemiologic methods; specialized knowledge pertaining to the minor field of specialization; disease biology and pathophysiology, which may be tailored to the student's special area of interest; and knowledge of the research process. Successful passage of the candidacy examination admits the student to doctoral candidacy. A student who does not successfully pass the candidacy examination may be required to take additional or remedial coursework and is allowed a second opportunity to pass the exam. Failing the candidacy examination the second time results in dismissal from the program.

Dissertation

A dissertation is required of every candidate for the degree of doctor of philosophy in public health sciences with a specialization in epidemiology. The dissertation is a scholarly achievement in research and presents an original contribution to knowledge. It should demonstrate a thorough understanding of research techniques in epidemiology and the ability to conduct independent research. The following sections summarize the basic requirements for the dissertation committee, dissertation proposal, and defense. Additional details are available in the department's document "Student Advising, Thesis and Dissertation Committees."

Dissertation Committee

The dissertation is read by a dissertation committee, chaired by the student's faculty advisor and appointed by the dean of the school on the recommendation of the program director and chair of the department. The committee consists of at least four members and must include one representative of an allied department. The dissertation must be approved by the committee and the chair of the department.

Dissertation Proposal

After successful completion of the qualifying examination, a doctoral candidate must submit a written dissertation proposal to the members of the dissertation committee. The candidate is then orally examined on the dissertation proposal.

Dissertation Preparation

The dissertation is prepared with the format and binding according to the guidelines of the School of Interdisciplinary and Graduate Studies, available at <http://louisville.edu/graduate/current-students/thesis-dissertation-information>.

Dissertation Approval

The dissertation is submitted in completed form to the chair of the department at least thirty days before the end of the term in which the candidate expects to be graduated, and the candidate is not eligible for final examination until the dissertation has been received by the committee and chair.

The dissertation committee schedules an oral defense by the candidate. The time and place for the defense is published to the general academic community, members of which are free to attend the defense. The dissertation is approved by a majority vote of the committee and the concurrence of the department chair.

Dissertation Submission

The following steps must be taken to submit the final copy of the dissertation electronically after oral defense and approval of the committee:

1. Final document must be converted to a PDF (following the guidelines as noted above) and sent to SIGS and the department's administrative assistant.
2. Submit as advised by the School of Interdisciplinary and Graduate Studies through the ThinkIR repository. [Click here to download instructions on this process](#).
3. The signature page within the electronic version must have the names of your committee members typed under the signature line; the signatures cannot be scanned into the document.
4. Submit a signed signature page on white paper, with original signatures, to the School of Interdisciplinary and Graduate Studies, attention Courtney Kerr.

A copy of the final, signed dissertation must also be deposited with the department office.

Accreditation

The School of Public Health and Information Sciences is accredited by the Council on Education for Public Health (CEPH).

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The University of Louisville is accredited by the Southern Association of Colleges and Schools Commission on Colleges (SACSCOC).

For more information, see the [School's accreditation webpage](http://louisville.edu/sphis/accreditation) (<http://louisville.edu/sphis/accreditation>).

v2010.06.03-09

Program Data and History

Program Data	
Name	Doctor of Philosophy in Public Health Sciences, Specialization in Epidemiology
Degree	Ph.D.
Department	Epidemiology and Population Health
Unit	School of Public Health and Information Sciences
Version	2010.06.03-09

Program History				
Version	Submitted	Approved	Change Summary	Author(s)
2006.10.11	09/20/06	10/24/06	<ul style="list-style-type: none"> Initial program and curriculum. 	
2006.10.11-01	07/18/07	07/18/07	<ul style="list-style-type: none"> Changed course prefix to PHPB from PKHC. 	
2006.10.11-02	07/20/07	07/20/07	<ul style="list-style-type: none"> Reformatted and reorganized to match template. Expanded dissertation section. 	
2008.05.14	05/27/08	06/24/08	<ul style="list-style-type: none"> Revised required coursework. Divided coursework into two blocks. Expanded list of approved minor electives. Added proficiency exam. Revised description of candidacy exam. Edited to meet university styleguide. 	
2008.05.14-01	08/10/09	08/10/09	<ul style="list-style-type: none"> Edited to change to SIGS and meet styleguide and policies. 	
2010.06.03	07/22/10	07/29/10	<ul style="list-style-type: none"> Added PHEP-648 and -649 as required coursework. Increased required credit hours to 50 from 48. Expanded fall I and spring I electives to either epidemiology or biostatistics from epidemiology only. 	
2010.06.03-01	09/02/10	09/02/10	<ul style="list-style-type: none"> Fixed course ID type in Spring 1 (PHEP-648 → PHEP-649) 	
2010.06.03-02	06/04/13	06/04/13	<ul style="list-style-type: none"> Updated administrative assistant Changed PHBI course identifier to PHST Deleted PHCI-501 Changed "concentration" to "specialization" 	Ms. Tammi Thomas
2010.06.03-03	08/05/14	07/08/15	<ul style="list-style-type: none"> Replaced PHEP-619 with PHEP-622 	Jack Barnette
	07/08/15		<ul style="list-style-type: none"> Added accreditation section 	Dr. Peter L. Walton
2010.06.03-04	02/11/16	2/26/2016	<ul style="list-style-type: none"> Updated Thesis Distribution information and link to SIGS dissertation guidelines. 	C. Winton Reynolds
2010.06.03-05	4/29/2016	4/29/2016	<ul style="list-style-type: none"> Updated PHCI prefix courses in electives. Prefix is obsolete. 	C. Winton Reynolds
2010.06.03-06	8/2/16	1/31/2018	<ul style="list-style-type: none"> Updated list of elective courses to correspond to changes in the online catalog Changed course name for PHEP-778 	C. Winton Reynolds
2010.06.03-07	7/16/15	[July 2015?]	<ul style="list-style-type: none"> Updates to curriculum implemented Fall 2015 (minutes from July AA/CC meeting missing). Deleted all non-SPHIS recommended electives 	Richard Baumgartner
2010.06.03-08	3/15/19	4/1/19	<ul style="list-style-type: none"> Removed PHEP 703 from required coursework and increase elective or independent study credits accordingly Approved by SPHIS: 3/25/19 Approved by Provosts' Office: 4/1/19 	Richard Baumgartner
2010.06.03-09	6/10/19	7/11/19	<ul style="list-style-type: none"> Added CEPH competencies listing Revision of admissions statement and inclusion of missing admission requirements Revision and clarification of Degree Requirements statement Removed variable "2-3" credit elective, stabilizing credit total for program at 50 credits. Removal of "minor field" requirement and associated "Approved Electives" course table. Clarification of Content Course Electives, Public Health Selectives, and Biostatistics Selectives. Approved by SPHIS: 6/21/19 Approved by IR: 7/11/19 	Richard Baumgartner