

EPIDEMIOLOGY – PH.D.

Interim program director

Michael Orlich

The Doctor of Philosophy (Ph.D.) degree program in epidemiology prepares students to effectively conduct epidemiologic research, apply epidemiologic principles and methods to address public health problems, and teach the discipline to others. The major research focus of the faculty in the program has been the epidemiology of chronic diseases linked to exposures such as tobacco use, air pollution, and diet. Studying the effects of diet on health and disease risk in populations is a particular strength of our program. The curriculum is designed to establish competence in classical and modern epidemiologic methods, to promote successful learning and application of emerging methods, and to prepare the graduate for successful interdisciplinary research collaboration with public health and medical professionals, nutritionists, biostatisticians, bioinformaticians, and biological scientists.

Program learning outcomes

By the end of the program, the graduate should be able to:

- Apply advanced knowledge of the principles and methods of epidemiology to interpret and critically evaluate the results of epidemiologic analyses;
- Apply epidemiologic principles to design appropriate studies to evaluate exposure-disease hypotheses; communicate these study designs in a research grant proposal;
- Demonstrate proficiency in the principles and methods of data collection and management; obtain epidemiologic data and prepare it for analysis;
- Analyze complex data using appropriate statistical methods and computer programming resources to answer epidemiologic questions;
- Effectively communicate epidemiologic science, orally and in writing, to the scientific community and the public, to advance the field and to promote public health;
- Use best-practice modalities in pedagogy to deliver educational experiences in an academic setting;
- Apply the principles of scientific and professional ethics in research, teaching, and practice.

Educational effectiveness indicators

- Assessments from required courses
- Comprehensive examination
- Dissertation proposal defense (qualifying examination)
- Dissertation manuscript
- Submission of three manuscripts from the dissertation to peer-reviewed journals, one of which must be published or accepted for publication
- Oral defense of dissertation
- Teaching assistantship
- Presentation at a scientific conference

Prerequisites

Doctoral-level health professional degree or master's degree in epidemiology or in a related field.

The following courses or equivalents:

- Anatomy and physiology
- Pathology
- Microbiology
- Biochemistry
- Genetics or molecular biology

G.P.A. of 3.5 or higher preferred

GRE or equivalent (above the 40th percentile in each section is favorable)

Individuals who may benefit from the program

Those who may benefit from the program include individuals seeking careers in:

- Academic epidemiology (research and teaching)
- Research in private industry, governmental agencies, or nonprofit organizations
- Public health epidemiology with a research focus

Program requirements

Co-requisites

EPDM 509	Principles of Epidemiology	3
EPDM 510	Epidemiologic Methods I	3
EPDM 520	Data Collection Methods	3
STAT 515	Grant- and Contract-Proposal Writing	3
STAT 521	Biostatistics I	4
STAT 548	Analytical Applications of SAS and R	2
Total Units		18

Advanced standing from previous degrees considered.

Public health core

PHCJ 606	Public Health Fundamentals	4
PHCJ 608A	Doctoral Seminar for Public Health	1
PHCJ 608B	Doctoral Seminar for Public Health	1
PHCJ 608C	Doctoral Seminar for Public Health	1
PHCJ 614	Pedagogy: The Art and Science of Teaching	2
PHCJ 618	Transformative Communication	2

Epidemiologic methods

EPDM 610	Advanced Epidemiologic Methods	4
STAT 522	Biostatistics II	4
STAT 523	Biostatistics III	3

Applied epidemiology

EPDM 635	Epidemiological Studies of Adventists	1
EPDM 645	Epidemiology of Tobacco Use and Control	2
EPDM 664	Epidemiology of Cardiovascular Disease	2
EPDM 665	Epidemiology of Cancer	2
EPDM 668	Molecular Epidemiology	2
NUTR 634	Concepts of Nutritional Epidemiology	3

Religion

RELE 525	Ethics for Scientists	3
RELR 540	Wholeness and Health ¹	3
RELT 617	Seminar in Religion and the Sciences (or approved alternate course)	3

Electives

Select from the following recommended electives or in consultation with advisor 12

BCHM 515	Introduction to Bioinformatics	
EPDM 512	Epidemiologic Methods III	
EPDM 544	Epidemiology of Infectious Disease	
HADM 587	Health Policy Analysis and Research	
HGIS 524	GIS Software Applications and Methods	
HGIS 536	Spatial Analytic Techniques and GIS	
HPRO 588	Health Behavior Theory and Research	
HPRO 589	Qualitative Research Methods	
NUTR 620	Advanced Topics in Nutrition	
NUTR 643	Advanced Applications in Nutritional Epidemiology	
NUTR 664	Vegetarian Nutrition: Person, Population, Planet	
PHCJ 600	Overview of Research Methodologies	
PHCJ 630	Concepts and Practical Issues of Secondary Data	

Research and dissertation

EPDM 685	Preliminary Research Experience	2
EPDM 698	Dissertation	12
PHCJ 624A	Scientist Forum	1
PHCJ 624B	Scientist Forum	1
PHCJ 624C	Scientist Forum	1

Total Units 72

¹ Fulfills service learning requirement

Additional requirements

Further details regarding non-course degree requirements are found in the *SPH Doctoral Handbook*.

Teaching assistantship

Ph.D. students are expected to assist faculty members with the teaching of epidemiology and/or biostatistics courses. It is the responsibility of doctoral students to obtain documentation from faculty members they have assisted.

Comprehensive examination

Doctoral students must pass a comprehensive examination prior to advancement to candidacy.

Dissertation proposal and proposal defense

After passing the comprehensive examination, each student will prepare a formal dissertation proposal. Successful defense of this proposal will lead to advancement to candidacy for the degree.

Presentation at scientific conference

The student must present one research project in poster or oral form at an appropriate professional conference.

Culminating experience

As a part of the culminating experience, the student must submit three manuscripts from the dissertation research to appropriate peer-reviewed journals, successfully defend the dissertation, and submit a committee-approved dissertation manuscript.

Scientific publication

The student must submit and have accepted for publication one of the three dissertation papers in an appropriate peer-reviewed journal prior to graduation. The two remaining dissertation papers must have been submitted to peer-reviewed journals prior to graduation.

Normal time to complete the program

Three to five (3-5) years – based on full-time enrollment