

# EPIDEMIOLOGY, DOCTOR OF PHILOSOPHY (PH.D.)

## Program mission

The mission of the Ph.D. program in epidemiology is to train students to become independent research scientists and leaders who can develop epidemiological methods and conduct outstanding population-based research.

## Program goals

1. **Critical foundation skills:** The program is designed to provide students with the critical skills required to advance to positions as epidemiological researchers/trainers in a broad spectrum of positions.
2. **Mastery and application of science:** The structure of the program provides a framework for the progressive development of a mastery of the current state of the subject matter of epidemiology and ability to synthesize this information and apply this foundation to the identification of key areas of investigation/experimentation in bioscience.
3. **Communication:** Students will develop skills in the various means of communicating both the core of epidemiological knowledge and the expression of epidemiological methodology, research design, results and interpretation to a variety of potential audiences.

## Student learning outcomes

Students in the doctoral program in epidemiology will develop competencies in the following areas, as described below.

1. Critically evaluate public health and medical literature, identify gaps and formulate an epidemiologic research question addressing a literature gap
2. Develop a research project that addresses an important public health or clinical question using appropriate advanced epidemiologic methods, and discuss related strengths and limitations
3. Conduct quantitative data analysis using advanced statistical techniques and software, summarize the results and draw appropriate conclusions.
4. Design and write an original research grant proposal for reviewed funding in the student's selected area of interest.

## VCU Graduate Bulletin, VCU Graduate School and general academic policies and regulations for all graduate students in all graduate programs

The VCU Graduate Bulletin website documents the official admission and academic rules and regulations that govern graduate education for all graduate programs at the university. These policies are established by the graduate faculty of the university through their elected representatives to the University Graduate Council.

It is the responsibility of all graduate students, both on- and off-campus, to be familiar with the VCU Graduate Bulletin as well as the **Graduate School website** and academic regulations in individual school and department publications and on program websites. However, in all cases, the official policies and procedures of the University Graduate Council, as

published on the VCU Graduate Bulletin and Graduate School websites, take precedence over individual program policies and guidelines.

**Visit the academic regulations section for additional information on academic regulations for graduate students.**

## Degree candidacy requirements

A graduate student admitted to a program or concentration requiring a final research project, work of art, thesis or dissertation, must qualify for continuing master's or doctoral status according to the degree candidacy requirements of the student's graduate program. Admission to degree candidacy, if applicable, is a formal statement by the graduate student's faculty regarding the student's academic achievements and the student's readiness to proceed to the final research phase of the degree program.

Graduate students and program directors should refer to the following degree candidacy policy as published in the VCU Graduate Bulletin for complete information and instructions.

**Visit the academic regulations section for additional information on degree candidacy requirements.**

## Graduation requirements

As graduate students approach the end of their academic programs and the final semester of matriculation, they must make formal application to graduate. No degrees will be conferred until the application to graduate has been finalized.

Graduate students and program directors should refer to the following graduation requirements as published in the Graduate Bulletin for a complete list of instructions and a graduation checklist.

**Visit the academic regulations section for additional information on graduation requirements.**

**Apply online at [sophas.org](http://sophas.org) (<http://www.sophas.org/>).**

## Admission requirements

Degree:	Semester(s) of entry:	Deadline dates:	Test requirements:
Ph.D.	Fall	Feb 1 (application strongly encouraged by this date)	GRE, TOEFL/ IELTS

## Special requirements

- Applicants must hold a master's degree, preferably in the health or social sciences, including, but not limited to, public health, and provide test scores as detailed below. Applicants must provide all required materials as described herein and in the VCU Admissions graduate application checklist.

In addition to the general admission requirements of the VCU Graduate School (<http://bulletin.vcu.edu/graduate/study/admission-graduate-study/admission-requirements/>), applicants must meet the following minimum qualifications.

1. Prior degree: Master's degree in the health or social sciences, including, but not limited to, public health (M.P.H.), with a minimum GPA of 3.0
2. GRE: Current GRE test results (taken within the past five years) with scores at or above the 75th percentile preferred in all components of the exam (e.g., minimum scores of 159 quantitative, 157 verbal and 4.5 analytical writing)
3. TOEFL: For non-native speakers of English, recommended minimum scores of either 100iBT, 600 PBT or IELTS scores of 6.5 (academic band score)
4. Personal statement: Applicants must include a personal statement that indicates: (1) their reasons for pursuing a doctoral degree in epidemiology, (2) their particular areas of research focus or study, (3) the departmental faculty advisers with whom the students would prefer to work and (4) career goals upon graduation.
5. Reference letters: Students must submit three letters of recommendation from three individuals who can assess the applicant's qualifications for graduate school. Letters from past professors or faculty advisers are most appropriate.
6. Current CV or resume: Students must submit a current CV or resume.

## Degree requirements

In addition to the general VCU Graduate School graduation requirements (<http://bulletin.vcu.edu/academic-regs/grad/graduation-info/>), students will be required to complete a minimum of 61 graduate credit hours as follows:

1. Four core courses focusing on epidemiological methods (12 credit hours)
2. Two core courses focusing on biostatistical theory and methods (six credit hours)
3. Four semesters of journal club (four credit hours)
4. Three courses of methodological electives (nine credit hours)
5. Three courses of substantive area electives, with at least one relating to the biological processes associated with the student's chosen substantive area (nine credit hours)
6. A minimum of two credit hours of practical research skills development
7. At least one course in the responsible conduct of research (one credit hour)
8. At least 18 credit hours of directed dissertation research

Students will also be required to complete the following:

## Practical experience

1. Assistantship: All doctoral students are required to work an average of 20 hours per week under the direction of their adviser as part of experiential program training. This 20-hour-per-week requirement is met by work in a research assistantship and at least one semester of a teaching assistantship.
  - a. Research assistantship: Research program support exposes students to a variety of aspects of developing and implementing research plans and programs. Work includes drafting manuscripts or preparing presentations for refereed conferences, conducting research activities in the community, traveling to attend research team meetings, or regular work with research team members.
  - b. Teaching assistantship: All doctoral students are required to serve as teaching assistants for at least one semester before

graduation. The student and her/his adviser discuss and select the course that is best-suited for the teaching assistantship. During the semester(s) when students engage in the teaching assistantship, teaching hours count toward the experiential training requirement and are combined with research hours to meet the expected 20-hour-per-week training time.

2. Seminar attendance: All students are expected to attend all doctoral level Division of Epidemiology seminars during their tenure in the program. These seminars are generally held every other week during fall and spring semesters. In addition, students must attend any special public health seminars offered collaboratively by the public health departments. These special seminars may occur one to two times each semester.
3. Grant application submission: All students are expected to submit at least one grant application related to their dissertation to a federal agency or nongovernmental organization (according to student eligibility) to gain grantsmanship experience. The adviser guides the student on the timing for submission of this grant application and the appropriate funding organization or agency.

## Comprehensive examinations

Comprehensive examinations include a written examination and an oral candidacy examination. The written examination assesses knowledge of completed didactic course work on core epidemiological and biostatistical methods as well as a tailored substantive section based on the student's research focus. The oral candidacy examination is based upon the student's dissertation proposal, which consists of three proposed research projects.

### Written comprehensive examination

Students are expected to take the written comprehensive examination after completing all didactic program courses (typically the program core, a practical research skills course, a responsible conduct of research course and 18 credits of elective course work). Program expectation for satisfactory academic progress is that students complete the written comprehensive examination by the end of the second academic year (i.e., no later than the end of the second summer semester). Exceptions beyond this time limit must be approved by the student's adviser and the graduate program director based on the student's submission of a written explanation for the delay in progress. This written explanation must include a plan of action and schedule for completing the written comprehensive examination by the date approved by the student's faculty adviser.

### Oral candidacy examination

After passing the written comprehensive examinations, the student is eligible for the oral candidacy examination. For this examination, the student prepares background and methods for three proposed research projects in a focused area of dissertation research.

To maintain satisfactory academic progress in the program, students should complete the oral candidacy examination by the end of third fall semester. Exceptions beyond this time limit must be approved by the student's committee and the graduate program director based on the student's submission of a written explanation for the delay in progress. This written explanation must include a plan of action and schedule for completing the oral candidacy examination by the date approved by the student's dissertation adviser.

Upon successful completion of the oral candidacy examination, the student will embark upon the dissertation research.

## Dissertation

1. The dissertation must be a hypothesis-based, analytical epidemiology project designed by the student under the supervision of the faculty adviser and dissertation advisory committee members as appropriate. The dissertation consists of a minimum of three papers prepared in manuscript style and suitable for submission to a peer-reviewed journal.
2. The student submits at least one of the three manuscripts from the dissertation to a peer-reviewed journal before the student schedules the final defense.

To maintain satisfactory academic progress in the program, students should schedule the dissertation examination by the second semester of the fourth year. Exceptions beyond this time limit must be approved by the student's committee and the graduate program director based on the student's submission of a written explanation for the delay in progress. Plans for completion of the dissertation examination will be considered on an individual basis. Failure to maintain satisfactory academic progress may result in a grade of U (unsatisfactory) for the dissertation work.

## Public Health Learning Objectives

In addition to meeting VCU Graduate School and program requirements for graduation, all students enrolled in the School of Population Health must demonstrate competence in foundational public health learning objectives. This requirement is waived for students who previously completed a CEPH-accredited degree at the bachelor's, master's, or doctoral level.

### Satisfactory academic progress

Satisfactory academic progress may be assessed on multiple factors, including progress on dissertation development in accordance with timelines established between the student and adviser and/or committee; lack of professional conduct, including communication lapses or failure to communicate with the adviser and/or committee about delays in progress and/or absence from research work; honor policy violations or academic misconduct; and failure to maintain continuous enrollment without an approved leave of absence.

## Course requirements

Course	Title	Hours
<b>Required core courses</b>		
BIOS 602	Analysis of Biomedical Data II	3
EPID 649	Analysis of Health Datasets	3
EPID 650	Epidemiologic Methods for Research	3
EPID 651	Intermediate Epidemiologic Methods for Research	3
EPID 652	Advanced Epidemiologic Methods and Data Analysis	3
EPID 690	Journal Club (taken four semesters)	4
STAT 643	Applied Linear Regression	3
<b>Required additional courses</b>		
Practical research skills development: Select a minimum of two credits from the following.		2
ALHP 716	Grant Writing for Health Science Research	

BIOS 610	Research Processes and Methods for the Health Professions	
GRAD 601	The Academic Profession	
GRAD 602	Teaching and Learning in Higher Education	
GRAD 604	Teaching, Learning, Technology and the Future of Higher Education	
GRTY 608	Grant Writing	
Responsible research conduct: Select at least one of the following.		1
OVRP 601	Scientific Integrity	
OVRP 602	Responsible Scientific Conduct	
OVRP 603	Responsible Conduct of Research	
<b>Elective courses</b>		
Methodological electives: Select nine credits from the following.		9
BIOS 549	Spatial Data Analysis	
BIOS 632	Multivariate Analysis	
BIOS 635	Structural Equation Modeling	
BIOS 668	Statistical Methods for High-throughput Genomic Data II	
BIOS 671	Nonlinear Models	
BNFO 601	Integrated Bioinformatics	
CCTR 630	Design Implications in Clinical Trials	
CCTR 631	Adaptive Clinical Trials	
CCTR 692	Special Topics in Translational Research	
EPID 620	Cancer Epidemiology	
EPID 622	Maternal and Child Health	
EPID 623	Injury and Violence Epidemiology	
EPID 646	Epidemiology of Psychiatric and Substance Use Disorders	
EPID 692	Independent Study	
HADM 763	Applied Health Services Research	
HCPR 730	Survey Research Methods and Analysis for Health Policy	
HGEN 603	Mathematical and Statistical Genetics	
HGEN 617	Genetic Analysis of Complex Traits	
HGEN 619	Quantitative Genetics	
PHAR 688	Applied Pharmacoepidemiology Research Methods	
PPAD 723	Survey Research Methods	
PSYC 655	Community Interventions: Development, Implementation and Evaluation	
SBHD 610	Behavioral Measurement	
SBHD 631	Disseminating, Adopting and Adapting Evidence-based Prevention Programs	
SBHD 633	Structural Equation Modeling	
SBHD 636	Community-based Participatory Research	
SBHD 637	Program Evaluation	
SBHD 638	Applications in Qualitative Research Methods	

SOCY 656	Social Network Analysis
URSP 521	Introduction to Geographic Information Systems
URSP 621	Introduction to Geographic Information Systems
URSP 622	Community Socioeconomic Analysis Using GIS
URSP 625	Spatial Database Management and GIS Modeling
URSP 627	GIS Applications in Urban Design
Substantive area electives: Select three courses of substantive area electives, at least one relating to the biological processes associated with the student's chosen substantive area from the following.	
EPID 603	Public Health Policy and Politics
EPID 620	Cancer Epidemiology
EPID 622	Maternal and Child Health
EPID 623	Injury and Violence Epidemiology
EPID 645	Public Health Genomics
EPID 646	Epidemiology of Psychiatric and Substance Use Disorders
EPID 691	Special Topics
EPID 692	Independent Study
GRTY 601	Biological and Physiological Aging
GRTY/PSYC 602	Psychology of Aging
GRTY 603	Social Gerontology
GRTY 604	Problems, Issues and Trends in Gerontology
GRTY 606	Aging and Human Values
GSWS 620	Theorizing Sexuality
HADM 602	Health System Organization, Financing and Performance
HADM 611	Health Care Law and Bioethics
HADM 615	Health Care Politics and Policy
HADM 624	Health Economics
HADM 704	Foundations of Health Service Organization Theory
HADM 705	Seminar in Health Services and Organizational Research
HCPR 610	Foundations in Health Services Research Methods
HCPR 701	Health Services Research and Policy I
HCPR 702	Health Services Research and Policy II
HCPR 720	Social and Economic Determinants of Health Disparities
HGEN 501	Introduction to Human Genetics
HGEN 502	Advanced Human Genetics
HGEN 610	Current Literature in Human Genetics
HGEN 620	Principles of Human Behavioral Genetics
HSEP 603	Risk Assessment
HSEP 650	Public Health Preparedness
NURS 502	Advanced Pharmacology
PSYC 629	Biological Basis of Behavior

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PSYC 630	Social Psychology
PSYC 660	Health Psychology
PSYC 679	Culture, Ethnicity and Health
SBHD 611	Health Literacy
SBHD 630	Theoretical Foundations of Social and Behavioral Health
SBHD 631	Disseminating, Adopting and Adapting Evidence-based Prevention Programs
SBHD 632	Health Disparities and Social Justice
SBHD 634	Patient-Provider Interaction
SBHD 637	Program Evaluation
SLWK 746	Social Work Practice and Psychopharmacology
SLWK 761	Interpersonal Violence in Clinical Social Work Practice

**Dissertation research**

EPID 697	Directed Research in Epidemiology	18
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**Total Hours** 61**The minimum number of graduate credit hours required for this degree is 61.**

Students who complete the requirements for this degree will receive a Doctor of Philosophy in Epidemiology.

**Contact**

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