Epidemiology — Ph.D.

Program director
Jayakaran S. Job

Closed to admission for 2018-2019 academic year.

The aim of the Doctor of Philosophy (Ph.D.) degree program is to prepare students entering with a strong background in the health sciences for a career in research and teaching in academic institutions, governmental agencies, research institutes, nonprofit organizations, or private industry. In contrast with the Dr.P.H. graduates, those with the Ph.D. degree may exhibit proficiency in "narrower lines of research and often with different types of research methods." They continue their careers, for example, teaching at a university, conducting research in a national laboratory, or engaging in population-based fieldwork around the world.

The curriculum is designed to fulfill program requirements while also addressing the nature of the student's research interest and academic needs. Ph.D. degree students are expected to critically evaluate and write scientific journal articles as part of their educational training. They are also expected to gain adequate experience in pedagogy. Each student is responsible for identifying an appropriate faculty research mentor during the program.

Learning objectives

Students completing the Ph.D. degree program in epidemiology are expected to develop high-level knowledge of epidemiologic theory and methodology and to apply this knowledge to the design, conduct, statistical analysis, and interpretation of data from population-based research in the health sciences.

The graduate of this program will be able to:

- Demonstrate knowledge of human disease etiology and apply this knowledge to epidemiologic investigations.
- Interpret descriptive epidemiologic data to generate hypotheses in the examination of possible risk factors for disease.
- Critically evaluate the scientific literature pertaining to exposure and disease relationships, study designs, measures of association, issues of bias, confounding and effect modification; and identify gaps in knowledge.
- Utilize classical, modern, and innovative epidemiologic methods to design studies and to develop research proposals using National Institutes of Health (NIH) guidelines.
- Apply quantitative skills to analyze and synthesize epidemiologic data and to use statistical software packages.
- Communicate epidemiologic concepts and findings orally and in written format (e.g., publishable manuscripts) to diverse audiences.

Educational effectiveness indicators

- Teaching assistantship
- Comprehensive examination
- Dissertation proposal defense
- Dissertation defense
- Dissertation manuscript (including three publishable research papers)
- Minimum of one published paper

Prerequisite

Doctoral-level health professional degree
or
Master's degree in a related field, with documented research experience (such as published or submitted paper) and the following courses:

- Anatomy
- Physiology
- Pathology
- Histology
- Microbiology
- Biochemistry

The following courses, or equivalent courses at the graduate level:

- EPDM 509 Principles of Epidemiology
- STAT 521 Biostatistics I
- STAT 548 Analytical Applications of SAS

Teaching assistantship/Laboratory assistantship

Ph.D. degree students are required to participate as teaching or laboratory assistants in introductory and advanced methodological courses. Further, they are expected to obtain experience in lecturing by developing and delivering at least one class lecture during their doctoral training.

Program requirements

Advanced standing from previous degrees considered.

**Epidemiologic methods**

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<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
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<tbody>
<tr>
<td>EPDM 510</td>
<td>Epidemiologic Methods I</td>
<td>3</td>
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<tr>
<td>EPDM 511</td>
<td>Epidemiologic Methods II</td>
<td>3</td>
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<tr>
<td>EPDM 512</td>
<td>Epidemiologic Methods III</td>
<td>3</td>
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<td>EPDM 515</td>
<td>Clinical Trials</td>
<td>3</td>
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<td>EPDM 520</td>
<td>Survey Methods</td>
<td>3</td>
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<tr>
<td>EPDM 635A</td>
<td>Epidemiological Studies of Seventh-day Adventists A</td>
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<tr>
<td>EPDM 635B</td>
<td>Epidemiological Studies of Seventh-day Adventists B</td>
<td>1</td>
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<tr>
<td>STAT 515</td>
<td>Grant- and Contract-Proposal Writing</td>
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<td>STAT 522</td>
<td>Biostatistics II</td>
<td>4</td>
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**Descriptive epidemiology**

Choose from the following: 12

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<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>EPDM 544</td>
<td>Epidemiology of Infectious Disease</td>
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<tr>
<td>EPDM 555</td>
<td>Epidemiologic Methods in Outcomes Research and Continuous Quality Improvement</td>
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<td>EPDM 565</td>
<td>Epidemiology of Cancer</td>
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<td>EPDM 566</td>
<td>Epidemiology of Cardiovascular Disease</td>
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<td>EPDM 567</td>
<td>Epidemiology of Aging</td>
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<tr>
<td>EPDM 588</td>
<td>Environmental and Occupational Epidemiology</td>
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<tr>
<td>EPDM 625</td>
<td>Special Topics in Epidemiology</td>
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**Religion**

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<td>RELR 5__</td>
<td>Graduate-level relational</td>
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<tr>
<td>RELE 525</td>
<td>Ethics for Scientists</td>
<td>3</td>
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<tr>
<td>or RELE 534</td>
<td>Ethical Issues in Public Health</td>
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<tr>
<td>RELT 615</td>
<td>Seminar in Philosophy of Religion</td>
<td>3</td>
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or RELT 617  Seminar in Religion and the Sciences

**Other required courses**
EPDM 606  Doctoral Seminar in Epidemiology 1 9

**Cognates**
Elective 2 6

**Research and dissertation**
EPDM 685  Preliminary Research Experience 2
EPDM 694  Research 3 6-8
EPDM 697  Dissertation Proposal 3-5
EPDM 698  Dissertation 3 12

Total Units 83-87

1  1 unit per every fall, winter, and spring quarters in program, minimum of 9 units
2  Courses chosen in consultation with advisor; may be from a different discipline, school or institution.
3  Repeated registrations required to fulfill total units

**Additional requirements**

**Forums/Seminars**
Doctoral students are required to attend a minimum of ten Epidemiology, Biostatistics, and/or Adventist Health Study seminars during each year of their program.

**Culminating experience**
As a part of the culminating experience, the student completes three publishable scientific papers for submission to peer reviewed journals (of which one must be accepted for publication), successfully defends dissertation, and submits a committee approved dissertation manuscript. Further details provided in the Doctoral Handbook.

**Normal time to complete the program**
3.33 years based on full-time enrollment