Epidemiology, PhD

Learning Outcomes

Graduates will be able to:

• summarize specific risk factor and disease processes in a specialized area;
• describe methods for primary data collection including quality assurance and quality control;
• use advanced statistical analysis methods appropriate for the study design and controlling for confounding variables;
• develop data collection instruments for research purposes;
• develop hypotheses that build upon literature and theoretical models of disease and causation;
• conduct an independent research project;
• compose a proposal for grant funding;
• communicate epidemiological concepts and methods in both writing and orally; and
• defend the methods, results, and implications of a research study.

Requirements

The Doctor of Philosophy program in epidemiology requires a minimum of 78 s.h. of graduate credit. Graduate students in epidemiology must maintain a cumulative grade-point average of at least 3.00. Those who receive a grade of C in 7 s.h. of coursework may be dismissed from the program.

The Doctor of Philosophy with a major in epidemiology requires the following coursework.

Core Courses

Students must take CPH:7270 Principles of Scholarly Integrity: Public Health during their first year in the fall semester (enroll for 0 s.h.) and in the spring semester (enroll for 1 s.h.). They must retake CPH:7270 if they completed the course more than four years ago or if they have changed degree programs.

Students enrolled part time (less than 9 s.h.) who have a graduate research assistantship appointment may choose to register in EPID:5925 Epidemiology Journal Club: Evaluating the Literature for 1 s.h.; however, the credit earned for this course will not be applied toward the minimum semester hours required for the PhD in epidemiology.

Students with a strong biosciences background may choose to substitute PATH:5270 Pathogenesis of Major Human Diseases in place of CPH:7270. Pathogenesis of Major Human Diseases fulfills the same course requirements as CPH:7270.

Students must successfully complete a PhD thesis.

Electives

Research Interest Area Electives

Students are encouraged to choose a recommended Epidemiology Research Interest Area to fulfill the research interest area elective requirement (23–25 s.h.). This curricular requirement encompasses student-selected coursework that demonstrates knowledge in an advanced research interest area. Students may select courses from a recommended interest area plan of study from the department's pre-approved curricula or they may, in consultation with their faculty advisor and after the approval of the department's pre-approved plans of study committee, propose a series of courses (23–25 s.h.) that form a customized research interest area. The department's pre-approved plans of study feature areas in infectious disease, chronic disease/life course, injury, infectious disease, and molecular and genetic epidemiology.

Additional Epidemiology Electives

In addition, students must select at least 3 s.h. from Department of Epidemiology courses (prefix EPID) outside their research interest area.

Dissertation

Students must successfully complete a PhD thesis.

Other Requirements

Preceptorship Requirement

Doctoral students who did not complete the MS program in epidemiology at the University of Iowa are required to take
EPID:5950 Preceptorship in Epidemiology or demonstrate that an equivalent course has been completed, such as a completed master’s thesis at another institution. This requirement must be fulfilled within one year of admission to the PhD program.

**Department of Epidemiology Seminar**

Every week during fall and spring semesters, the Department of Epidemiology seminar provides a forum for speakers to present information or research pertaining to diverse topics in epidemiology. Students are expected to achieve at least 80% attendance at the seminar during each semester of enrollment.

**Journal Club for First-Year Students**

Journal Club for first-year students is for those who are new to the department. The focus is for students to gain experience in reading, interpreting, and critically evaluating recently published journal articles. Students should register in EPID:5925 Epidemiology Journal Club: Evaluating the Literature. PhD students who have experience with journal reviews, or who have already completed EPID:4400 Epidemiology I: Principles or received a waiver for EPID:4400, may enroll in the full-year section of Journal Club during their first semester.

**Journal Club**

Every other week during the academic year, the Journal Club meets to discuss articles of interest in the field. Contact information for the Journal Club coordinators can be found on the Department of Epidemiology website under Preceptorship, Journal Club, and Seminar Contacts. Information about the schedule is distributed to students each semester. Students are required to achieve at least 80% attendance at Journal Club for five semesters during their time in the program. Attendance earned while enrolled as an MS student does not count toward the required five semesters.

**Scientific Poster Requirement**

Every student is required to present at least one scientific poster at the department level and one poster at the international, national, regional, state, or university level, at some point prior to graduation. A student’s advisor or dissertation mentor can help determine the suitability and timeline for the poster presentation.

**Seminar Presentation**

In addition to the dissertation defense, students are required to make a presentation at a Department of Epidemiology seminar. It is recommended that students complete the seminar presentation and dissertation defense in the same semester, with the seminar presentation scheduled before the defense so the seminar can serve as preparation for the defense.

**Human Subjects Protections (IRB) Certification**

Students are required to provide evidence that they have completed an approved education program in human subjects protections. This should be done at the time of appointment to a graduate research assistantship position, at the start of the preceptorship, or at the start of thesis/dissertation research. More information is available about the human subjects protections certification on the University of Iowa’s Human Subjects Office website.

**Examinations**

All doctoral students must successfully complete a qualifying examination, a comprehensive examination, a dissertation prospectus, and a dissertation. The research topic and content, which vary depending on the program of study, must be approved by a student’s dissertation committee.

**Combined Programs**

**PhD/MD**

Students may work toward the Doctor of Medicine degree and a PhD in epidemiology in a combined degree program offered by the Carver College of Medicine and the College of Public Health. Applicants must be admitted to both programs before they may be admitted to the combined degree program. See the Medical Scientist Training Program (Carver College of Medicine) in the catalog.

**Admission**

Applicants must apply through the Schools of Public Health Application Service (SOPHAS); they also must pay the required application fee to the Graduate College through the University of Iowa Office of Admissions when prompted. For detailed application information, visit How to Apply to the Department of Epidemiology on the department's website.

The epidemiology faculty considers several factors when evaluating applications for admission, including Graduate Record Exam (GRE) General Test scores, grade-point average, letters of recommendation, intent and motivation for graduate study, and research interests. Students with deficiencies in one area may be admitted if all other components of their application are very strong.

All applicants must hold a baccalaureate degree (an MS or MPH usually is required) and must have a cumulative grade-point average of at least 3.00. Courses in the biological, physical, and mathematical sciences provide important background; one semester of calculus, one semester of statistics or biostatistics, and two semesters of biological sciences are highly recommended. Computing skills also are desirable.

Applicants whose first language is not English must submit official test scores to verify English proficiency. Applicants can verify English proficiency by submitting official test scores from the Test of English as a Foreign Language (TOEFL) or the International English Language Testing System (IELTS).

All applicants and students are required to have strong written and oral communication skills.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations on the Graduate College website.

The application deadline for fall admission is April 1.

**Financial Support**

A limited number of graduate research assistantships are available for advanced students; for information, consult the department. For information on financing education through jobs, grants, and loans, contact the university's Office of Student Financial Aid.
Scholarships for incoming students are available; for information, visit the Department of Epidemiology website.

Opportunities for funded predoctoral fellowships are available. Funded positions sponsored by federal agencies are available only to U.S. citizens.

Career Advancement

The program prepares graduate students for careers as scientists, teachers, and practitioners of epidemiologic methods. Employment opportunities exist in academic institutions; local, state, and federal health agencies; and in private enterprises.

Academic Plans

Sample Plan of Study

Sample plans represent one way to complete a program of study. Actual course selection and sequence will vary and should be discussed with an academic advisor. For additional sample plans, see MyUI.

Epidemiology, PhD

Course    Title                      Hours
Academic Career
Any Semester
78 s.h. must be graduate level coursework; graduate transfer credits allowed upon approval. More information is included in the General Catalog and on department website. A program GPA of at least 3.00 is required.

First Year
Any Semester
Preceptorship Requirement
PhD Qualifying Exam
Department Seminar

Fall
BIOS:4120 Introduction to Biostatistics 3
EPID:4400 Epidemiology I: Principles 3
EPID:5600 Introduction to Epidemiology Data Management and Analysis 3
CPH:6100 Essentials of Public Health 2
CPH:7270 Principles of Scholarly Integrity: Public Health 0
EPID:5925 Epidemiology Journal Club: Evaluating the Literature 0 - 1

Spring
EPID:5241 Statistical Methods in Epidemiology 4
EPID:5610 Intermediate Epidemiology Data Analysis with SAS and R 3
EPID:6400 Epidemiology II: Advanced Methods 4
CPH:7270 Principles of Scholarly Integrity: Public Health 1

Fall
EPID:5925 Epidemiology Journal Club: Evaluating the Literature 0 - 1

Second Year
Any Semester
Department Seminar

Fall
MPB:5153 or HHP:3500 Graduate Physiology 3 - 4
EPID:6100 Writing a Grant Proposal 3
EPID:7400 Epidemiology III: Theories 3
PATH:8133 or PATH:5270 Introduction to Human Pathology for Graduate Students 3 - 4
or Pathogenesis of Major Human Diseases
EPID:5925 Epidemiology Journal Club: Evaluating the Literature 0 - 1

Spring
BIOS:6210 Applied Survival Analysis 3-4
EPID:6050 Research in Epidemiology 3
Elective 3 - 4
Elective 3 - 4
EPID:5925 Epidemiology Journal Club: Evaluating the Literature 0 - 1

Third Year
Any Semester
Comprehensive Exam
Prospectus Defense
Department Seminar

Fall
BIOS:6310 Introductory Longitudinal Data Analysis 3
Elective 3 - 4
Elective 3 - 4
EPID:5925 Epidemiology Journal Club: Evaluating the Literature 0 - 1

Spring
Elective 3 - 4
Elective 3 - 4
Elective 3 - 4

Fourth Year
Any Semester
Department Seminar

Fall
EPID:7000 Thesis/Dissertation 9

Spring
EPID:7000 Thesis/Dissertation 1 - 9
Final Exam

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<th>Hours</th>
<th>1-9</th>
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<td>Total Hours</td>
<td>78-100</td>
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a. Students must complete specific requirements in the University of Iowa Graduate College after program admission. Refer to the Graduate College website and the Manual of Rules and Regulations for more information.
b. Students who did not complete the Epidemiology MS program at UI are required to take EPID:5950 Preceptorship or receive program approval to substitute a previously completed equivalent course; must be completed by end of the first year.
c. Taken during spring semester of the first year (or after completion of epidemiology core coursework); same as the MS final examination with the addition of an essay exam.
d. Students must attend the Epidemiology department seminar and are expected to achieve at least 80% attendance during each semester of enrollment; PhD students are required to make one presentation at Department Seminar preferably during the semester of the dissertation defense.
e. Taken in the fall and spring of first year for 0 s.h. and 1 s.h., respectively.
f. PhD students are required to achieve at least 80% attendance for five semesters; prior MS attendance does not count. If taken for 1 s.h., the credit will not be applied toward the minimum semesters hours required for the PhD in Epidemiology.
g. Students with a strong biosciences background may substitute PATH:5270 for PATH:8133 if it fits better with their training plan. PATH:5270 is an advanced course that requires a strong foundation in molecular biology and related disciplines, but may be suitable for some students.
h. At least 3 s.h. of electives must be from the Epidemiology department (prefix EPID) and outside of Research Interest Area; see General Catalog and website for coursework and specifics. Work with faculty advisor to select appropriate graduate elective coursework in Research Interest Area.
i. Students must complete either BIOS:6210 (typically during second year fall semester) or BIOS:6310 (typically during third year fall semester).
j. Taken after the majority of coursework for the PhD degree has been completed.
k. Dissertation defense.