Epidemiology

DEGREES OFFERED:
• Master of Public Health
• Doctor of Philosophy

MPH IN EPIDEMIOLOGY
The Master of Public Health (MPH) degree is designed for those who wish to acquire knowledge and skills necessary for epidemiologic practice and research. This degree will be appropriate for persons interested in a career studying the relationship of risk factors to a variety of disease, injury, and other health-related states.

WVU MPH graduates in Epidemiology are qualified to work and provide leadership in state, federal, and global health agencies (e.g., Centers for Disease Control and Prevention [CDC], The National Institute for Occupational Safety and Health [NIOSH]); hospitals; infection control departments in multiple industries; academic health centers and other healthcare organizations; research institutions, foundations; insurance and managed care organizations; and pharmaceutical and biotechnology companies.

PH.D. IN PUBLIC HEALTH SCIENCES (EPIDEMIOLOGY MAJOR)
The Doctor of Philosophy (Ph.D.) in Public Health Sciences, Epidemiology Major, prepares students for careers in research, teaching, and consulting. Students develop research and teaching skills in epidemiology through coursework and practice opportunities. The curriculum provides rigorous and comprehensive training in epidemiologic methods for clinical and population-based research including study design, statistical analysis and interpretation of results, as well as research areas of focus for epidemiologic research including chronic diseases, infectious diseases, injury, and gene by environment interactions. The program’s etiologic orientation is based on the premise that knowledge of genetic, physiologic, behavioral, and environmental factors contribute to understanding the underlying causes of complex human diseases needed to develop and evaluate effective preventive and treatment measures. The first years of the program emphasize research and statistical methods complemented by theoretical and process-oriented coursework relevant to epidemiology. The latter years will largely be dedicated to dissertation research.

Ph.D. graduates in the Epidemiology Major work as faculty members in academic institutions; scientists in research centers, e.g., the National Institutes of Health (NIH), Centers for Disease Control and Prevention (CDC) or the pharmaceutical industry; or may assume leadership positions in state or federal health agencies (such as CDC, Food and Drug Administration [FDA], and the Environmental Protection Agency [EPA]).

FACULTY
CHAIR
• Thomas C. Hulsey, Professor - MSPH, Sc.D.
  (The Johns Hopkins University)

PROFESSORS
• Gregory A. Hand - Ph.D. (University of Texas Southwestern Medical Center at Dallas)
• Sarah Knox - Ph.D. (University of Stockholm)
• Ian R. H. Rockett - Ph.D. (Brown University)
• Gordon Smith - MB, ChB (MD equivalent), MPH (University of Otago Medical School, Harvard School of Public Health)

ASSOCIATE PROFESSORS
• Kimberly Innes - Ph.D. (Cornell University)
• R. David Parker - Ph.D. (University of South Carolina)

ASSISTANT PROFESSORS
• Baqiyah Conway - Ph.D. (University of Pittsburgh)

ADJUNCT ASSOCIATE PROFESSOR
• Robert Bossarte - Ph.D. (University of Notre Dame)

ADJUNCT ASSISTANT PROFESSOR
• Miguela Mark-Cares - Ph.D. (Cornell University)
  Office of Epidemiology and Prevention Services, WV DHHS
ADMISSION GUIDELINES FOR MPH

• A baccalaureate degree from an accredited college or university (required)
• Preferred minimum GPA of 3.0
• Preferred minimum GRE scores of 150 (verbal), 155 (quantitative), and 3.5 (analytical writing)
• Personal Statement
• Three academic letters of recommendation
• TOEFL scores (minimum 550 paper-based, 213 computer-based, 80 internet-based) International students only

If you are ready to apply to West Virginia University School of Public Health, the admissions team is here to assist you. Our School of Public Health is CEPH accredited, and we participate in SOPHAS (Schools of Public Health Application Service). Our MPH Admissions process is a two-step process. All MPH applications must be submitted through the national SOPHAS service and applicants must also submit a WVU Graduate application.

In addition to the general application, applicants must submit to SOPHAS a statement of purpose and objectives, official GRE test scores, three letters of reference, a current resume/curriculum vitae, and all university transcripts. SOPHAS requires original transcripts from ALL U.S. institutions attended! (Even Study Abroad) Please see each Major’s website for additional application requirements.

Applicants must indicate their first choice of MPH major, and may also indicate a second choice. A maximum of two choices is allowed. (SOPHAS fee $120.00 – one choice; SOPHAS fee $165.00 – two choices)

• E-submit your application as soon as the applicant entered information is complete. Do NOT wait for SOPHAS to receive transcripts, recommendations or test scores
• Plan Ahead! Allow up to 4 weeks for SOPHAS to verify grades, process and mail your application to your designated institutions after your documents have been received.
• SOPHAS grants fee waivers based upon financial need for Peace Corps Volunteers, McNair Scholars, Gates Millennium Scholars Program, AmeriCorps, U.S. and International applicants.

Applications that are complete will then be reviewed by the department. Students will receive a communication from the WVU School of Public Health regarding their recommendation for acceptance and instructions to complete the WVU Graduate application and pay the $60.00 WVU application fee.

Important: When sending GRE scores for consideration for admission at WVU use the GRE WVU School of Public Health College code: 0157. This is the code that MUST be used, otherwise your GRE score will not be reported to SOPHAS and your application will be incomplete and therefore will not be reviewed for an admissions decision. [There are different codes for other programs at West Virginia University]

ADMISSION GUIDELINES FOR THE PH.D. IN PUBLIC HEALTH SCIENCES (EPIDEMIOLOGY MAJOR)

Degree Requirements

• A Master’s degree in Public Health or a closely related field is strongly preferred. Exceptional applicants with a Bachelor’s degree in a relevant field may also be considered.
• Minimum GPA of 3.0 is required, 3.5 is preferred.

Minimum Test Scores

• The following GRE scores are preferred: Verbal 150; Quantitative 155; and Writing 3.5.
• WVU requires international students to submit TOEFL scores. Preferred scores are as follows: 550 on the paper-based test; 213 on the computer-based test; and 80 on the internet-based test.

Application Procedure

Applying to the Ph.D. program is a two-step process in which prospective students first submit an application through the national SOPHAS service. If you are accepted into the Ph.D. program by the School, the next step is for you to complete a WVU Graduate Application (https://graduateadmissions.wvu.edu/).

The SOPHAS application requires:

• Official test scores
• Official transcripts from all US institutions attended
• A Personal Statement
• 3 Letters of Recommendation
• Current CV/Resume
Applicants must indicate their first choice of Major and may indicate a second choice (you are allowed a maximum of two choices).

There is a $120 SOPHAS application fee. However, SOPHAS grants fee waivers based upon financial need for McNair Scholars, Gates Millennium Scholars, as well as for AmeriCorps and Peace Corps Volunteers.

TIPS for completing the SOPHAS application:

• APPLY EARLY! Allow up to 4 weeks for SOPHAS to verify your transcripts and test scores and send them to the Universities to which you have applied. Your application may not be reviewed if it does not contain verified transcripts and test scores.
• When submitting your GRE scores, be sure to use the college code 0157 for the WVU School of Public Health. This code MUST be used so that verified scores are sent by SOPHAS to the WVU School of Public Health for review.
• Submit your application once you have provided the required information. DO NOT wait for SOPHAS to receive transcripts, recommendations or test scores prior to submitting your application.

Go to https://sophas.liaisoncas.com/applicant-ux/#/login to complete the SOPHAS application.

Personal Statement

The Personal Statement is a critical piece of the application. The content of the Statement and the applicant’s writing skills will be evaluated in the admissions decision. The Statement should address the following in no more than 1000 words:

• What is it about Public Health that interests you?
• What is it about your selected major, specifically, that interests you?
• What are your career goals?
• What topics or areas of research do you wish to pursue and why? If you have identified a potential dissertation topic, briefly describe that as well.
• Which faculty members in the SPH do you see as being potential mentors to help you succeed in your area of interest?

Applicants should also include any additional information about their interests, background, prior experience, or special circumstances that may be helpful to the SPH Admissions Committee.

Letters of Recommendation

Three letters of recommendation are required. At least two of these should be from people who can attest to your academic abilities.

Deadlines

The deadline by which you must submit your completed SOPHAS application is 5:00pm (EST) December 31. Applications received after this deadline will not be considered. All admissions are for the Fall semester. We do not admit students into the PhD program in the Spring or Summer semesters.

Review process

All completed and verified SOPHAS applications are first reviewed by the Admissions Committees of the major to which an applicant has applied (EPID, OEHS, or SBHS). Candidates that are recommended for admission at this level, are put forth to the SPH Doctoral Admissions Committee, which makes the final decisions on admissions and funding.

Advanced Standing for Applicants with a Master’s Degree

Students who enter the Ph.D. program with an MPH or approved Master’s degree are eligible for Advanced Standing. This allows students to complete an abbreviated course of study that takes between 2 and 3 years to complete, depending on the student’s past course work and current interests.

Master of Public Health

Epidemiology Major Competencies

• Derive and assess basic epidemiologic frequencies and association.
• Compare and contrast epidemiologic study designs.
• Weigh a public health problem in terms of magnitude, person, time, and place.
• Measure occurrences of incidence, morbidity, and mortality.
• Summarize concepts of causation.
• Derive appropriate inferences from epidemiologic data.
• Analyze data using statistical software to fit epidemiologic regressions, generate coefficients, and explain interpretations properly.
• Analyze data for confounding, and generate a proper interpretation.
• Appraise data for effect modification, and generate a proper interpretation.
• Evaluate data for dose-response.
• Evaluate basic multivariable statistical techniques commonly used in clinical and public health settings.
• Manage standard statistical software to efficiently manage data structures.
• Integrate and synthesize epidemiologic knowledge, skills and abilities as demonstrated in the context of a culminating experience.

MAJOR REQUIREMENTS

MPH Core Curriculum:
BIOS 601  Applied Biostatistics 1  3
BIOS 602  Applied Biostatistics Lab  1
EPID 611  Concepts and Methods of Epidemiology  3
HPML 601  Foundations of Health Policy  3
OEHS 601  Environmental Health  3
PUBH 696  Graduate Seminar  1
SBHS 601  Social and Behavioral Theory  3

MPH Concentration Curriculum:
BIOS 603  Applied Biostatistics 2  3
BIOS 611  Data Management and Reporting  3
EPID 612  Applied Epidemiology for Public Health  3
EPID 696  Graduate Seminar  1

Practice based/Culminating Experiences:
PUBH 622  MPH Practice-Based Experience  3
EPID 629  Epidemiology Capstone  3

Electives:
BIOS 621  Categorical Data Analysis HS
BIOS 625  Principles of Clinical Trials
EPID 760  Demography and Transitions
EPID 763  Injury Epidemiology
EPID 764  Mind-body Medicine
EPID 765  Epidemiology of Transportation Safety
EPID 766  Physical Activity Epidemiology
OEHS 622  Public Health Toxicology
OEHS 732  Occupational Injury Prevention
EPID 740  Gene X Environmental Interactions and Chronic Diseases
PUBH 586  Public Mental Health
PUBH 605  Introduction to Global Public Health
SBHS 660  Survey Research Methods

Total Hours  42

SUGGESTED PLAN OF STUDY

First Year

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<th>Spring</th>
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<td>BIOS 611</td>
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<td>PUBH 696</td>
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Second Year

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<td>Elective</td>
<td>3</td>
<td>PUBH 622 (or Elective)</td>
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The MPH degree will be awarded based on successful completion of all academic requirements and demonstrated achievement of competencies. The department chair using a faculty panel will review competency performance evidence and based on the evidence reviewed, determine if the student has achieved the expected competencies. If a determination is made that competencies have not been achieved, the department chair will inform the student what must be accomplished to demonstrate achievement and therefore be recommended for awarding of the MPH degree. This may include taking additional courses.

Doctor of Philosophy

Overview

The Doctor of Philosophy (PhD) in Epidemiology prepares students for a career in research, teaching, practice, or consulting. Students develop research and teaching skills in epidemiology through coursework and practice based opportunities. The curriculum provides rigorous and comprehensive training in epidemiologic methods for clinical and population based research including study design, statistical analysis, and interpretation of results, as well as research in multiple content areas.

Upon completion of the PhD degree in Epidemiology, graduates should be able to:

• Design investigations of acute and chronic conditions, as well as other adverse health outcomes in targeted populations.
• Analyze and evaluate data from epidemiologic investigations, and disease and injury surveillance systems.
• Evaluate health behaviors and outcomes in populations by such variables as age, sex, race/ethnicity, socioeconomic status, and disability.
• Critically evaluate results of epidemiologic studies, including study design, analysis results, and conclusions.
• Prepare written and oral reports and presentations to effectively communicate to professional audiences, policymakers, and the general public.
• Prepare research proposals for extramural peer reviewed funding.
• Promote and model ethical conduct in epidemiologic practice.
• Bring epidemiologic perspectives to the development and analysis of public health policies.

Graduates of the PhD in Epidemiology program typically work as faculty members in academic institutions, scientists in research centers, such as the National Institutes of Health (NIH), Centers for Disease Control and Prevention (CDC) or the pharmaceutical industry, or may assume leadership positions in state, or federal health agencies (such as CDC, Food and Drug Administration [FDA], and the Environmental Protection Agency [EPA]).

Admission Guidelines for PhD:

• A Master’s degree in epidemiology or public health is recommended but not required, or closely related field from an accredited college or university (minimum GPA of 3.0).
• GRE minimum score of 305 (total). GRE preferred scores of the 60th percentile for verbal, 80th percentile for quantitative, and 60th percentile for analytic writing.
• A completed PhD application, including a Statement of Purpose.
• Three academic and/or professional letters of recommendation.
• TOEFL scores (minimum standards set by the University) for International students only.

If a students have not taken departmentally approved graduate coursework prior to admission to the PhD program, they will be required to successfully complete a minimum of 80 graduate hours beyond the bachelor’s degree. If a student has previously completed a departmentally approved MPH or MS degree prior to admission to the PhD program, they will be required to successfully complete a minimum of 58 graduate hours beyond the master’s degree. If a student has previously completed some graduate credit, they may transfer a maximum of 12 graduate hours of coursework into the PhD program.

Statement of Purpose

The essay is a critical piece of the admissions process. We will evaluate both the content of the essay and your writing skills in considering your application. All applicants should write an essay of 1000 words or less. In this essay, please address the following questions:

What is it about epidemiology that appeals to you?
What area of interest do you wish to study and why?
Which faculty do you foresee working with on your content?
Applicants should include any additional information about their interests, prior background or special circumstances which may be helpful to the Admissions Committee.

**Required Courses for a PhD in Epidemiology**

The first two years of the program emphasize research and statistical methods complemented by theoretical and process oriented coursework relevant to Epidemiology. The last two years will largely be dedicated to dissertation research. The program takes approximately three years for a student with an MPH in epidemiology and four years for a student without an MPH degree in epidemiology.

**Major requirements**

Below are the minimum requirements for the EPID PhD in Public Health Sciences for students without an MPH. Some students entering the program with a departmentally approved Master's degree may be eligible to complete an abbreviated version of the curriculum.

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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
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<td>EPID 611</td>
<td>Concepts and Methods of Epidemiology</td>
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<td>EPID 612</td>
<td>Applied Epidemiology for Public Health</td>
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<tr>
<td>PUBH 659</td>
<td>Public Health Foundations</td>
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<td>EPID 711</td>
<td>Methodological Issues in Design &amp; Analysis of Cohort Studies</td>
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<td>EPID 722</td>
<td>Field Placement</td>
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<tr>
<td>EPID 712</td>
<td>Quantitative Methods in Epidemiology</td>
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<td>EPID 796</td>
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<td>BIOS Elective 500 level or higher</td>
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<td>Applied Biostatistics 3</td>
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<td>Intermediate Biostatistics</td>
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<td>BIOS 611</td>
<td>Data Management and Reporting</td>
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<td>Teaching in Higher Education</td>
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<td>EPID 797</td>
<td>Research</td>
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<td>Electives - Select from the following:</td>
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<td>EPID 745</td>
<td>Epigenetics and Systems Biology</td>
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<td>EPID 760</td>
<td>Demography and Transitions</td>
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<td>EPID 763</td>
<td>Injury Epidemiology</td>
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<td>Epidemiology of Transportation Safety</td>
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<td>Physical Activity Epidemiology</td>
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**Research**

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<tr>
<td>EPID 797</td>
<td>Research</td>
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**Electives**

Courses may be selected from among the Department, School, or University’s many course offerings. This will allow students to develop an area of focus. These courses will be discussed and approved with the faculty advisor.

**Teaching Practicum**
Students will spend one semester in a mentored relationship with a faculty member, assisting with the implementation of a course. This is a 2 credit, 90 hour experience. Students will help with lecture preparation, giving three lectures and tutoring. Grading assignments or exams should be kept minimum. These may be graduate or undergraduate level courses.

Qualifying Exam

The Qualifying Examination is a requirement for completion of the PhD program coursework and to advance to candidacy. Successful completion of the examination signifies competence in epidemiology and indicates readiness to engage in independent research. The Written Qualifying Exam will focus on methodology (core courses in years 1 and 2). It is not a discussion of the student’s research project/interests or the advisor’s research program. The Oral Exam Component consists of a defense of student’s answers to the written exam and includes additional questions that further test the student’s understanding of key concepts in epidemiology. The oral defense of the written exam must be attempted within two academic weeks of completing the written exam. Note: Students are not eligible to begin their dissertation, or sign up for dissertation credits, until they have successfully completed both components of the qualifying examination.

The Qualifying Examination should, to the extent possible, be scheduled by the end of the second year in the Program when most of the coursework is completed.

A Qualifying Exam Committee (minimum of 3 faculty with a primary appointment in epidemiology) will be assigned by the Epidemiology Department Chair at the beginning of each academic year to oversee the development and scoring of the exam. A designation of PASS or FAIL will be assigned upon completion. To pass, a student must receive a score of pass from the majority of faculty members on the committee. If a student does not PASS, s/he may not proceed to the Dissertation Proposal Defense and must retake the Qualifying Exam, with the approval of the Graduate Director, no later than six (6) months after the notification of failure. If a student receives a grade of fail upon retaking the Qualifying Exam, s/he will not advance to candidacy and will be dismissed from the Program.

Dissertation Committee

It is incumbent upon students to form a dissertation committee. This committee will oversee the student’s dissertation research. Below are the requirements for the composition of this committee:

- Committees must consist of no fewer than four members
- At least one member must be from a department other than EPID
- At least three members must be affiliated with the SPH
- The majority of members must have regular graduate faculty membership. No more than one person may be a nonmember of the graduate faculty.
- The Committee Chair must have their primary appointment in EPID at the associate professor rank or higher, and hold regular graduate faculty status. Exceptions may be approved with agreement of the Graduate Director and Department Chair.
- Any changes in committee membership require approval of the dean or designee of the college or school.

Dissertation Format and Process

Students may choose to pursue a traditional dissertation format or the Three Journal Article (JAF). The decision of which format to use is based on a discussion with the dissertation chair. The Dissertation Proposal Defense will be administered no later than six months after passing the Qualifying Exam. The Dissertation Proposal Defense will consist of a written proposal of the student’s anticipated dissertation research followed by an oral defense that will not exceed two (2) hours in length. The format of the written proposal must adhere to the form of a current National Pre Doctoral Award Application (i.e., National Institutes of Health, National Science Foundation, etc.).

The proposal must be submitted to the Dissertation Committee at least two (2) weeks prior to the scheduled Research Proposal Defense. The student’s Committee chair (advisor) is to be present at the defense. Upon conclusion of the Research Proposal Defense, the Committee will discuss it and the student will immediately invited back to meet with the Committee to discuss his/her performance and will be provided with a detailed list of strengths and weaknesses to be addressed in a subsequent meeting (to be held within two (2) weeks of the Defense, and will be considered as a Dissertation Committee meeting).

The Dissertation Committee will assign a grade of pass or fail to the student’s performance immediately following the oral defense. To receive a pass, there can be only one unfavorable vote from the committee. If a student earns a grade of fail on the Research Proposal Defense, s/he will be given clear guidelines as to the necessary changes, and may redo the Defense no later than six (6) months after the failure. If a student again receives a grade of fail, s/he will not progress and dismissed from the Program.

In order to graduate, the student must have one first author publication published or in press (either from the dissertation or TAF). After the thesis or dissertation committee has tentatively approved the student’s written thesis or dissertation, the final defense can be scheduled. A student cannot be considered as having satisfactorily passed their defense if there is more than one unfavorable vote among members of the committee.

University Doctoral Degree Requirements

For further details on WVU’s requirements for Doctoral programs please visit the following website: http://catalog.wvu.edu/graduate/advising/courses/degrees/degree_regulations/.
Credit Transfer

For further information on the SPH’s credit transfer policy, please visit the following website:

http://publichealth.hsc.wvu.edu/students/student-policies/graduate-course-transfer-policy/

SUGGESTED PLAN OF STUDY FOR STUDENTS WITHOUT AN MPH (80 CREDITS)

First Year

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Second Year

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Third Year

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Fourth Year

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<td>EPID 797</td>
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Total credit hours: 80

Students with an MPH may be able to waive EPID 611, 612, 722; BIOS 601, 602, 603, 611; PUBH 659 (total of 22 credits).

Major Learning Goals

EPIDEMIOLOGY

MPH Major Competencies

- Derive and assess basic epidemiologic frequencies and association.
- Compare and contrast epidemiologic study designs.
- Weigh a public health problem in terms of magnitude, person, time, and place.
- Measure occurrences of incidence, morbidity, and mortality.
- Summarize concepts of causation.
- Derive appropriate inferences from epidemiologic data.
- Analyze data using statistical software to fit epidemiologic regressions, generate coefficients, and explain interpretations properly.
- Analyze data for confounding, and generate a proper interpretation.
- Appraise data for effect modification, and generate a proper interpretation.
- Evaluate data for dose-response.
- Evaluate basic multivariable statistical techniques commonly used in clinical and public health settings.
- Manage standard statistical software to efficiently manage data structures.
- Integrate and synthesize epidemiologic knowledge, skills and abilities as demonstrated in the context of a culminating experience.
DOCTOR OF PHILOSOPHY

Program Competencies

• Develop effective strategies for teaching in higher education
• Review and synthesize pertinent literature and formulate focused research questions that address identified knowledge gaps
• Design and conduct original research that uniquely contributes to the public health scientific knowledge
• Disseminate research findings through appropriate peer-reviewed publications and presentations, and to other public health community audiences

Major Competencies

• Design investigations of acute and chronic conditions, as well as other adverse health outcomes in targeted populations.
• Analyze and evaluate data from epidemiologic investigations, and disease and injury surveillance systems.
• Evaluate health behaviors and outcomes in populations by such variables as age, sex, race/ethnicity, socioeconomic status, and disability.
• Critically evaluate results of epidemiologic studies, including study design, analysis results, and conclusions.
• Prepare written and oral reports and presentations to effectively communicate to professional audiences, policymakers, and the general public.
• Prepare research proposals for extramural peer-reviewed funding.
• Promote and model ethical conduct in epidemiologic practice.
• Bring epidemiologic perspectives to the development and analysis of public health policies.

COURSES

EPID 601. Public Health Epidemiology. 3 Hours.
PR or CONC: BIOS 601. Examines mortality and morbidity trends, disease and injury models, data sources classification, measures of frequency and association, research design, casual assessment, data interpretation, and screening from an epidemiological perspective.

EPID 611. Concepts and Methods of Epidemiology. 3 Hours.
PR: BIOS 610. An in-depth examination of the theory of epidemiology and its application to general epidemiologic research, including problem conceptualization, sound study design, research conduct, and interpretation of findings with depth of understanding expected of masters-level students.

EPID 612. Applied Epidemiology for Public Health. 3 Hours.
PR: BIOS 601 and EPID 610 and EPID 611. Applied quantitative methods essential to core training of epidemiology majors. Covering analysis of large public health datasets, methods of summarizing results, calculation of confidence intervals, standardization, calculation of measures of association.

EPID 625. Principles of Clinical Trials. 3 Hours.
Students will apply the core elements of clinical trials and learn to address their major challenges by critically evaluating clinical trial literature, designing original clinical trials and developing grant proposals in clinical trial research.

EPID 627. Epidemiology Proposal. 2 Hours.
Students develop a proposal for an epidemiology practicum project (applied or research-based) that integrates public health skills, theory and knowledge and is supported by a faculty-review process. (part one of the MPH culminating experience).

EPID 628. Epidemiology Practicum. 6 Hours.
PR: EPID 627. Students implement the substantive public health project (planned in proposal course) under the mentorship of faculty and preceptors. Results are reported through a formal paper and a poster presentation to faculty, students and guests.

EPID 629. Epidemiology Capstone. 3 Hours.
PR: EPID 610 and EPID 611 and EPID 612. The Epidemiology Capstone is the culminating experience for MPH students in epidemiology. It requires students to demonstrate their ability to synthesize and integrate the core public health and epidemiology knowledge and competencies via a paper and oral presentation. (Grading will be Pass/Fail.).

EPID 663. Public Health Surveillance. 3 Hours.
PR: EPID 601 or EPID 610 with a minimum grade of B. This course includes presentations and discussions of epidemiologic principles, basic statistical analysis, public health surveillance, field investigations, surveys and sampling, and epidemiologic aspects of current major public health problems in international health. The course will cover chronic and infectious diseases surveillance, and procedures and policies for data collection, compilation, and reporting. Metrics developed by the WHO will be used.

EPID 664. Chronic Disease Epidemiology. 3 Hours.
PR: EPID 610 or consent. A broad introduction to the epidemiology of chronic non-infectious diseases, including diabetes mellitus, hypertension, cardiovascular disease, cancer, osteoporosis, Alzheimer's disease, and the role of various lifestyle risk factors for these diseases.

EPID 665. Injury Control Seminar. 1 Hour.
A survey of current research practice in injury prevention and control (IPC). Local and regional researchers and practitioners provide students a unique perspective on IPC research, interventions, programs, and policies.

EPID 691A. Advanced Topics. 1-6 Hours.
PR: Consent. Investigation in advanced topics that are not covered in regularly scheduled courses.
EPID 695. Independent Study. 1-6 Hours.
Faculty-supervised study of topics not available through regular course offerings.

EPID 696. Graduate Seminar. 1 Hour.
PR: Consent. Each graduate student will present at least one seminar to the assembled faculty and graduate student body of his or her program.

EPID 710. Advanced Principles of Epidemiology. 3 Hours.
PR or CONC: BIOS 610. An intensive introduction to epidemiological concepts and methods for PhD students intending to engage in, collaborate in, or interpret the results of epidemiologic studies. Familiarity with biomedical concepts may be needed.

EPID 711. Methodological Issues in Design & Analysis of Cohort Studies. 3 Hours.
PR: Consent. An in-depth examination of methodological issues related to the design and analysis of epidemiologic cohort studies. Comparison of different approaches to the analysis of epidemiologic data. Investigation of the role analytic methods decisions play in determining the accuracy, validity, and meaningfulness of analytic outcomes.

EPID 712. Quantitative Methods in Epidemiology. 3 Hours.
PR: EPID 610 or consent. Quantitative methods essential to core training of epidemiology majors, covering crude analysis of categorical and continuous variables, confounding, sensitivity analysis, effect measure modification, logistic regression, Poisson regression and negative binomial regression, and survival analysis.

EPID 714. Molecular and Genetic Epidemiology. 3 Hours.
PR: EPID 710. Students are introduced to molecular genetic epidemiology with a focused exposure to areas of emphasis, linkage and association-analysis with exposure to tools needed to critically review literature in genetic epidemiology and human genetics.

EPID 715. Advanced Epidemiology. 3 Hours.
PR: EPID 711. Causality and threats to validity in epidemiologic research are presented, focusing on assessment and control of bias, including selection bias, information bias and confounding. Assessment and control of effect modification (interaction) are included.

EPID 740. Gene X Environmental Interactions and Chronic Diseases. 3 Hours.
The goal of this course is to inform students about the role of environmental factors in gene expression related to complex diseases such as CVD and cancer.

EPID 745. Epigenetics and Systems Biology. 3 Hours.
Course provides overview of ways that non-genetic factors influence and interact with gene expression; comparing, contrasting systems biology approaches to more traditional reductionist methods for investigating complex phenotypes.

EPID 760. Demography and Transitions. 3 Hours.
PR: EPID 710 or consent. Life table and other population-based techniques and approaches to studying international and sociodemographic patterns and differentials in mortality morbidity, and disability.

EPID 761. Cardiovascular Epidemiology. 3 Hours.
PR: EPID 710. An in-depth introduction to epidemiological methods in studying cardiovascular disease and related conditions, including diabetes, hypertension, chronic kidney disease, sleep-disordered breathing. In addition, classical as well as novel cardiovascular risk factors will be covered.

EPID 762. Cancer Epidemiology. 3 Hours.
PR: EPID 710 or consent. This course is intended for students considering cancer epidemiology as a substantive focus. Providing students fundamental concepts and methodology in cancer epidemiology and reviewing current epidemiologic research in cancer from a variety of perspectives.

EPID 763. Injury Epidemiology. 3 Hours.
PR: EPID 711. In-depth application of epidemiology to injury. This course covers how to use select epidemiologic methods to study injury as a public health problem, focusing on issues specific to the prevention and control of injury.

EPID 764. Mind-body Medicine. 3 Hours.
PR: EPID 710 or consent. Using real world examples, this course covers the complex relationships between psychosocial factors and chronic illness; major mind-body practices and common clinical applications of these practices; the effects of these practices on specific health outcomes.

EPID 765. Epidemiology of Transportation Safety. 3 Hours.
PR: EPID 712. A broad introduction of epidemiological designs and methods in transportation safety in the context of specific road users, including inexperienced and mature drivers, passengers, large-truck drivers, pedestrians, bicyclists, motorcyclists, and all-terrain vehicle riders.

EPID 766. Physical Activity Epidemiology. 3 Hours.
PR: EPID 710. This course provides an in-depth examination of the epidemiology of physical activity. The course builds upon basic epidemiological methods and explores the relationship between physical activity and chronic diseases.

EPID 767. Maternal and Child Health Epidemiology. 3 Hours.
PR: EPID 710 and BIOS 610. A broad introduction of epidemiological designs and methods in maternal and child health topics including prenatal care, maternal complications, preterm birth, low birth weight, fetal, neonatal/infant mortality, congenital malformations, prenatal substance exposure and development disabilities.

EPID 768. Environmental Epidemiology. 3 Hours.
PR: EPID 710. A broad introduction of epidemiological methods to study environmental determinants of disease will be presented in the context of studies of specific health outcomes, including: cancer, non-malignant respiratory diseases, adverse reproductive outcomes, and neurologic diseases.
EPID 769. Occupational Epidemiology. 3 Hours.
PR: BIOS 610 for MPH students and EPID 710 for PhD students. Application of epidemiology to occupational disease and injury. Occupational hazards, including concepts of exposure and dose, as well as study design considerations unique to occupational studies, especially design challenges and analytic implications, will be covered.

EPID 770. Nutritional Epidemiology. 3 Hours.
This course addresses the role of nutrition and food components in primary, secondary, and tertiary disease prevention. Through cooperative learning, students will practice critical thinking skills in the study of nutrition in chronic disease prevention.

EPID 771. Infectious Diseases Epidemiology. 3 Hours.
PR: EPID 610 or EPID 710. This course is designed to cover the basic epidemiological, public health, economic, surveillance, prevention and other issues related to infectious diseases. The focus includes the major infectious diseases experienced globally as well as those specific to the United States.

EPID 790. Teaching Practicum. 1-3 Hours.
PR: Consent. Supervised practice in college teaching of (subject matter determined by department/division/college/school offering the course). NOTE: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It also provides a mechanism for students not on assistantships to gain teaching experience.

EPID 791A. Advanced Topics. 1-6 Hours.
Investigation of advanced topics not covered in regularly scheduled courses.

EPID 795. Independent Study. 1-9 Hours.
PR: Consent. Faculty-supervised study of topics not available through regular course offerings.

EPID 796. Graduate Seminar. 1 Hour.
PR: Consent. Each graduate student will present at least one seminar to the assembled faculty and graduate student body of his or her program.

EPID 797. Research. 1-15 Hours.
PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading will be S/U).