

Areas of Study

EPIDEMIOLOGY/ BIOSTATISTICS

(MPH)

EPIDEMIOLOGY/BIOSTATISTICS

I. Epidemiology/Biostatistics Program

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I. Epidemiology/Biostatistics Program

ABOUT THE PROGRAM

The two-year MPH has a flexible structure, allowing students to explore the field of public health, epidemiology and biostatistics according to their individual interests. Most students take about 1/3 epi classes, 1/3 biostat classes, and 1/3 electives. All MPH students must enroll in the breadth courses (PB HLTH 200J, K, L). Epi/Biostat MPH students are expected to take the first year and second year seminars (Epi/Biostat first year seminar PB HLTH 292.X and Epi/Biostat second year seminar PB HLTH 292.X). Most graduates work in research positions or with a state or local health agency, or go on to further doctoral study.

MISSION

The mission of Epidemiology/Biostatistics is to generate new knowledge that can lead to improvements in health, while emphasizing and identifying emerging areas of inquiry, especially those that cross disciplinary boundaries; disseminate and apply existing and new knowledge in the training of health professionals who will engage directly with populations at highest risk of poor health, and/or who will conduct research in epidemiology and biostatistics; and serve the larger communities in which we live and work by using our skills and knowledge. In addition, epidemiologic studies are an essential component of the evaluation of the effectiveness of such programs.

CORE COMPETENCIES

Upon satisfactory completion of the MPH curriculum with a concentration in Epidemiology, graduates will be able to demonstrate the following competencies:

- » Demonstrate methodological expertise in selecting and formulating a research hypothesis, study design, obtaining or collecting epidemiologic data, data analysis, and interpreting/presenting in written and oral forms.
- » Collaborate with both investigators and statistical colleagues in the analysis of data from biomedical and public health studies applying knowledge of summary evidence using systematic review or meta-analysis.
- » Implement methods of data management and cleaning documentation for epidemiologic data sets, including using SAS, R, and/or Stata.
- » Use appropriate regression analysis techniques for continuous, binary, count and censored time to event outcomes to analyze data from medical and other public health studies.
- » Conduct epidemiologic analyses for linear, logistic, categorical, and continuous data, Cox, and Poisson regression, including multivariate and longitudinal models.
- » Provide expertise in data analysis and statistical methods.
- » Interpret study findings, including critically identifying strengths and limitations of individual studies.
- » Demonstrate ability to write clear grant proposals and results of research studies.

II. Epidemiology/Biostatistics Curriculum

TWO-YEAR MPH CURRICULUM

Unit Requirements

Two-year MPH students are required to complete a minimum of 48 total units of coursework over four academic semesters and one summer. The minimum unit enrollment per academic semester is 12 units. Students in the two-year MPH program must meet all school-wide breadth requirements.

Grading

Students have the option of taking a course on a Satisfactory/Unsatisfactory (S/U) basis, but no more than one-third of the master's program may be fulfilled by courses graded Satisfactory. Students cannot take MPH breadth course requirements on an S/U basis. No more than 12 units may be in the 296, 297, 298, 299 series.

IMPORTANT NOTE: breadth courses MUST BE TAKEN FOR A LETTER-GRADE and a student must receive a B- or above to fulfill this requirement. Exceptions to this policy are rare and made on a case-by-case basis.

Courses

You can enroll in classes through the online system: calcentral.berkeley.edu. Please check the online schedule at schedule.berkeley.edu each semester for new courses and for course availability. Courses in the PB HLTH 290, 292, 298, and 299 series may change their section numbers each semester. Course Numbers (previously CCNs) will also change every semester. Additionally courses numbered 99 and below are considered to be undergraduate courses. Graduate students may take no more than half of the required degree units in courses numbered 100 through 199. Courses numbered below 99 **do not** count toward meeting any graduate degree requirements.

Required Courses for the MPH Degree

PB HLTH 200J, L	Public Health Core Breadth Seminar (2 units each, Fall)
PB HLTH 200K	Public Health Core Breadth Seminar (2 units, Spring)
PB HLTH 297	Public Health Field Placement (3 units, Fall)

Please be aware that full-time student status requires an enrollment in a minimum of 12 units each semester. Also note that most of the courses listed are only offered in either the FALL or SPRING semester.

TWO-YEAR SAMPLE SCHEDULE**First Year Program**

Fall Semester		Units
PB HLTH 200J	HPM Breadth	2
PB HLTH 200L	HSB Breadth	2
PB HLTH 142 or 145	Intro to Prob Stat or Cont Outcome Data	4
PB HLTH 250A or 250B	EPI methods I or EPI methods II	3
PB HLTH 292.X	MPH SEMINAR	3
PB HLTH	Elective(s)	2

Spring Semester		Units
PB HLTH 200K	EHS Breadth	2
PB HLTH 144A	Intro SAS Program	2
PB HLTH 144B	Intermediate SAS Program	2
PB HLTH 241	Analys Categorical Data	4
PB HLTH	Elective(s)	

Second Year Program

Fall Semester		Units
PB HLTH C242C	Longitudinal Analysis	4
PB HLTH 250B	EPI methods II, if not taken first year	4
PB HLTH 297	PB HLTH Field Study	4
PB HLTH 292.X	Capstone I Seminar	3
PB HLTH	Elective(s)	

Spring Semester		Units
PB HLTH XXX	Biostat/Methods Elective	2-4
PB HLTH 292.X	Capstone II Seminar	2
PB HLTH	Elective(s)	to 12 units

Key Epidemiology Courses

PB HLTH 142 Introduction to Probability and Statistics in Biology & Public Health (4 units), if no previous coursework in statistics. If you have a solid background in stats you may enroll in PB HLTH 245 (below)

PB HLTH 145 Statistical Analysis of Continuous Outcome Data (4 units)

PB HLTH 241 Statistical Analysis of Categorical Data (4 units)

If, for some reason, you can only take PB HLTH 145 OR PB HLTH 241, we recommend taking PB HLTH 241

- PB HLTH 250A Epidemiologic Methods I, can be waived if student possesses a strong background in Epi (3 units). If so, students can take PB HLTH 250B (below).
- PB HLTH 250B Epidemiologic Methods II (4 units)
- PB HLTH 292.X Thesis seminar for Epidemiology-Biostatistics students (serves to guide students through the process of a Master's thesis using secondary data) (2 units, S/U)

NOTE: (PB HLTH 251C and PB HLTH 292.X are designed to help guide you through the thesis-writing process)

- PB HLTH 292.X Epidemiology/Biostatistics seminar for Epi/Bio students
(2 units, 1st semester)
- PB HLTH 292.X Epidemiology/Biostatistics Seminar for Epi/Bio students
(2 units, 4th semester)

Recommended Courses:

- PB HLTH 206C Nutritional Epidemiology (3 units)
- PB HLTH 207A Public Health Aspects of Maternal and Child Nutrition (2-3 units)
- PB HLTH 210D Reproductive Perinatal Epidemiology (2 units)
- PB HLTH C242C Longitudinal Analysis (4 units)
- PB HLTH 245 Introduction to Multivariable Statistics (4 units)
- PB HLTH 250C Advanced Epidemiologic Methods (4 units)
- PB HLTH 251C Causal Inference and Meta-Analysis
(students who do not have experience reviewing the epidemiologic literature and writing about epidemiologic topics; 2 units)
- PB HLTH 251D Applied Epidemiology using R (2 units)
- PB HLTH 252B Infectious Disease Modeling (2-4 units)
- PB HLTH 253B Epidemiology and Control of Infectious Diseases (2 units)
- PB HLTH 253D Behavior & Policy Science in HIV Treatment and Prevention (3 units)
- PB HLTH 253G Sexual Health Promotion and Sexually Transmitted Disease Control (2 units)
- PB HLTH 255A Social Epidemiology (3 units)
- PB HLTH 255D Methods in Social Epidemiology (2 units)
- PB HLTH 256 Molecular & Genetic Epidemiology and Human Health in the 21st Century
(4 units)
- PB HLTH 257 Outbreak Investigation (2 units)
- PB HLTH 258 Cancer Epidemiology (2 units, odd years)
- EDUC 275G Longitudinal Hierarchical Models (3 units, Fall)

III. Epidemiology/Biostatistics Capstone

COMPREHENSIVE EXAM

Each student in the Epidemiology and Epidemiology/Biostatistics master's program is required to submit a written paper in the year-long MPH capstone experience. Papers submitted by the deadline must be considered final. The defense of the paper in the spring semester, in the presence of two or more faculty, is designed to meet the requirement of the Graduate Division and the School of Public Health for an oral examination. All students must receive a separate passing grade for the paper and the oral examination in order to receive the MPH degree. More details about the

final due date for paper submission and dates and process for the defense will be provided later in the document.

Students will be provided with specific guidelines in their Capstone I seminar.

There are five features that should be common to all papers submitted to fulfill this requirement:

1. The paper must be original work done by the student
2. The paper must demonstrate that it is built on existing knowledge
3. The paper must demonstrate knowledge of/competence in basic concepts related to epidemiologic research (e.g. study design and analysis, bias, confounding, effect modification, etc.)
4. The paper must make clear the relevance of the topic to health/public health
5. The paper must be well written. 🌀