PUBLIC HEALTH, MPH: BIOSTATISTICS

The Biostatistics track builds on the classic Public Health Biostatistics skill and knowledge base and takes advantage of special knowledge of its faculty in the areas of genetics, bioinformatics, network analysis, causal inference, and big data science. Students have the opportunity to learn and apply statistical genetics in the context of complex disease study, high throughput computing used in "big" data science, applications in evidence-based patient-centered outcome studies, and population-based epidemiological studies. Courses include topics and material such as interpretation of personalized and evidence-based medicine in the context of public health; basic understanding of genetics and epigenetics; general "omic" approaches and concepts; as well as classic Biostatistics topics such as Survival and Categorical data analysis.

Related Certificate


The Zilber School of Public Health (SPH) offers a Master of Public Health (MPH), a PhD in Public Health with a Concentration in Community and Behavioral Health Promotion, a PhD in Public Health with a Concentration in Biostatistics, a PhD in Environmental Health Sciences, and a PhD in Epidemiology.

Master of Public Health

The Master of Public Health offered by the Zilber SPH is a professional master’s degree program with five distinct tracks of study. The MPH program provides students with a broad understanding of public health practice and allows specialization in Biostatistics, Community and Behavioral Health Promotion, Environmental Health Sciences, Epidemiology, or Public Health Policy and Administration.

Like most MPH programs, the Zilber SPH’s program imparts knowledge and skills in each of these core disciplines in public health, helping prepare all students to analyze information and consider solutions to public health problems using a social justice lens at the community, institutional, and societal levels. Courses have been designed to teach program- and track-level competencies as defined by Zilber SPH faculty. Program-level competencies reflect key public health skills including systems thinking, ethics, analytical methods, communications/ informatics, diversity/culture, leadership, and professionalism. In addition, students engage in a specific track of study, gaining deeper competency in one of the five areas. Upon graduation students are prepared for positions in a range of population health settings and/or for doctoral-level study.

Admission Requirements

Application Deadlines

Application deadlines vary by program, please review the application deadline chart (http://uwm.edu/graduateschool/program-deadlines) for specific programs. Other important dates and deadlines can be found by using the One Stop calendars (https://uwm.edu/onestop/dates-and-deadlines).

Admission

An applicant must meet Graduate School requirements plus as the desired track of study requires: the following program requirements to be considered for admission to the program. These materials will be considered in a holistic admissions process with special attention to ensure a diverse student body.

1. Three letters of recommendation from persons familiar with the applicant’s academic experience and potential for graduate work in public health.
2. CV or resume.
3. Score report from the General Test of the Graduate Record Examination (GRE) (http://uwm.edu/graduateschool/admission/#gre), taken within the last five years.
4. The admissions committee may consider GMAT (http://uwm.edu/graduateschool/admission/#gmat), LSAT, MCAT scores in place of GRE (http://uwm.edu/graduateschool/admission/#gre) scores. Students requesting this or any other exception should apply in writing for consideration by the Applications Review Committee.
5. Address the following two Short Essay questions, limiting responses to no more than 500 words (approximately 250 words per question):
   - Describe how your professional, volunteer, and educational background has led you to seek a degree in Public Health.
   - How will your desired track of study help you reach your personal and professional goals in Public Health?
6. International applicants must also meet admission standards set and monitored by UWM’s Center for International Education.
7. MPH applicants must use SOPHAS (https://sophas.org) to apply. When applying applicants must select their track of which they are applying; Biostatistics, Community and Behavioral Health Promotion, Environmental Health Sciences, Epidemiology, or Public Health Policy & Administration.
8. Tracks may have additional admission requirements, which can be found here (http://uwm.edu/publichealth/faqs).

Credits and Courses

All students enrolled in the MPH program take a common set of core classes designed to give basic skills and knowledge of public health concepts. The core curriculum consists of at least 24-25 credit hours, including at least a four-credit Field Experience and a two-credit capstone seminar. In addition to the common core, students complete the required coursework in one of five specialization tracks: Biostatistics (48 credits), Community and Behavioral Health Promotion (48-49 credits), Environmental Health Sciences (47 credits), Epidemiology (49 credits), or Public Health Policy and Administration (48 credits). Students must maintain a cumulative GPA of 3.0 or better in order to progress through the program.

Unless noted, all courses are 3 credits.

MPH Required Common Core Courses (24-25 credits)

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<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PH 702</td>
<td>Introduction to Biostatistics</td>
<td>3</td>
</tr>
<tr>
<td>PH 703</td>
<td>Environmental Health Sciences</td>
<td>3</td>
</tr>
<tr>
<td>PH 704</td>
<td>Principles and Methods of Epidemiology</td>
<td>3</td>
</tr>
<tr>
<td>PH 705</td>
<td>Principles of Public Health Policy and Administration</td>
<td>3</td>
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</table>
The required competencies are:

Students fulfill these competencies with readings and through a series of activities including case studies or scenarios/role playing exercises. Assessments for the leadership, negotiation and interprofessional team competencies will include participation in the sessions and written papers.

All four credits may be taken in one semester or spread out over two semesters.

**Capstone**
The capstone requires students to integrate the knowledge and skills learned in the classroom, Field Experience, and/or lab into some aspect of professional public health practice. Students work with their Faculty Advisor to write a project proposal the semester prior to the capstone reflecting the student’s interests and career goals. Students then implement the project during their final semester of the program. The project has both a written paper and oral presentation component, in addition to attending a weekly seminar. The capstone project is an opportunity for students to demonstrate public health competencies.

### Field Experience

The Field Experience enables students to apply knowledge and skills learned in the classroom to public health problems in a community context. Students work with their Faculty Advisor and school staff to identify a placement that matches their public health interests and career goals. Possible placement settings include a local health department, state health department, non-profit agency, hospital system, or research institute. The experience is a mentored placement engaging both a Faculty Advisor and a Site Preceptor. Students complete at least two products as agreed upon with the Site Preceptor.

Students complete three credits (80 contact hours per one credit, 240 hours total) with the organization. The specified competencies, scope of work, and final products for the organization are defined in a learning agreement, which is signed by the student, preceptor, faculty advisor and course instructor. Students must demonstrate attainment of at least five competencies, three of which must be Foundational Competencies (see Field Experience Handbook), and two of which are identified from the track competency sets.

Two Foundational Competencies are required of all students:

- **16.** Apply principles of leadership, governance and management, which include creating a vision, empowering others, fostering collaboration and guiding decision making.
- **19.** Communicate audience-appropriate public health content, both in writing and through oral presentation.

Students choose their third Foundational Competency.

The fourth credit is designed to give students the opportunity to apply three specific Foundational Competencies related to the Field Experience. The required competencies are:

- **CEPH 16.** Apply principles of leadership, governance and management, which include creating a vision, empowering others, fostering collaboration and guiding decision making.
- **CEPH 17.** Apply negotiation and mediation skills to address organizational or community challenges.
- **CEPH 21.** Perform effectively on interprofessional teams. Students from at least two professions constitute an interprofessional team.

### Biostatistics Concentration

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<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>PH 711</td>
<td>Intermediate Biostatistics</td>
<td>3</td>
</tr>
<tr>
<td>PH 712</td>
<td>Probability and Statistical Inference</td>
<td>3</td>
</tr>
<tr>
<td>PH 713</td>
<td>Data Management and Visualization in R</td>
<td>3</td>
</tr>
<tr>
<td>PH 714</td>
<td>Statistical Genetics and Genetic Epidemiology</td>
<td>3</td>
</tr>
<tr>
<td>PH 715</td>
<td>Applied Categorical Data</td>
<td>3</td>
</tr>
<tr>
<td>PH 716</td>
<td>Applied Survival Analysis</td>
<td>3</td>
</tr>
<tr>
<td>PH 717</td>
<td>Applied Longitudinal Data Analysis</td>
<td>3</td>
</tr>
<tr>
<td>PH 720</td>
<td>Special Topics in Biostatistics: Clinical Trials</td>
<td>3</td>
</tr>
<tr>
<td>PH 721</td>
<td>Introduction to Translational Bioinformatics</td>
<td>3</td>
</tr>
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Total Credits: 21

### Program Requirements

#### Faculty Advisor

Each student will be assigned a track-specific Faculty Advisor during Orientation week preceding the first semester. Faculty Advisors assist the student in the development of an individual Plan of Study designed to advance the career goals of the student and be consistent with the track curriculum. The Advisor plays an important role in connecting the Field Experience, Capstone, and career goals for each student.

UWM’s Zilber School recognizes the importance of a strong faculty advising program coupled with a sound system for monitoring student progress in all programs. Each semester, students are asked to assess their own progress through a required survey. They also complete a progress form together with their advisor. Feedback to students will be
provided by 1) their faculty advisor in December during their advisor-student meeting and 2) a letter in May signed by their faculty advisor and program director confirming progress and noting any guidance for subsequent years, including plans and timetable for remediation when necessary.

Administrative offices of the Zilber School of Public Health have staff assigned on policies and procedures for admission, academic progression, and graduation. If deemed necessary, any student can petition to the Zilber SPH’s Office of Academic and Student Affairs for a reassignment of Faculty Advisor. Program track faculty will make every effort to accommodate requests to give all students opportunities for success in the program.

**Thesis**
Not required. See capstone for similar culminating experience.

**Comprehensive Examination**
Not required. See capstone for similar culminating experience.

**Time Limit**
The student must complete all degree requirements within five years of initial enrollment.