Environmental Health Sciences

Academic degree programs in the Graduate Group in Environmental Health Sciences (EHS) are recommended for individuals with clear research interests of an interdisciplinary nature. Applicants may apply to the MS, MPH program or the PhD program. EHS is administered within the Division of Environmental Health of the School of Public Health. Although students receive their academic degrees from the graduate group (under the jurisdiction of the Graduate Division of the UC Berkeley campus), students are also affiliated with and apply to the School of Public Health. For more information on the EHS and Global Health and Environment (GHE) MPH please go here (http://guide.berkeley.edu/graduate/degree-programs/public-health/).

For a complete list of faculty please visit our website (https://publichealth.berkeley.edu/academics/environmental-health-sciences/).

Undergraduate Program
There is no undergraduate program in Environmental Health Sciences.

Admission to the University
Applying for Graduate Admission
Thank you for considering UC Berkeley for graduate study! UC Berkeley offers more than 120 graduate programs representing the breadth and depth of interdisciplinary scholarship. A complete list of graduate academic departments, degrees offered, and application deadlines can be found on the Graduate Division website (http://grad.berkeley.edu/programs/list/).

Prospective students must submit an online application to be considered for admission, in addition to any supplemental materials specific to the program for which they are applying. The online application can be found on the Graduate Division website (http://grad.berkeley.edu/admissions/).

Admission Requirements
The minimum graduate admission requirements are:

1. A bachelor’s degree or recognized equivalent from an accredited institution;
2. A satisfactory scholastic average, usually a minimum grade-point average (GPA) of 3.0 (B) on a 4.0 scale; and
3. Enough undergraduate training to do graduate work in your chosen field.

For a list of requirements to complete your graduate application, please see the Graduate Division’s Admissions Requirements page (https://grad.berkeley.edu/admissions/steps-to-apply/requirements/). It is also important to check with the program or department of interest, as they may have additional requirements specific to their program of study and degree. Department contact information can be found here (http://guide.berkeley.edu/graduate/degree-programs/).

Where to apply?
Visit the Berkeley Graduate Division application page (http://grad.berkeley.edu/admissions/apply/).

Environmental Health Sciences MS - Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>PB HLTH 270</td>
<td>Introduction to Environmental Health Sciences</td>
<td>3</td>
</tr>
<tr>
<td>PB HLTH 270A</td>
<td>Exposure Assessment and Control</td>
<td>3</td>
</tr>
<tr>
<td>PB HLTH 270B</td>
<td>Toxicology I</td>
<td>3</td>
</tr>
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</table>

Admission to the Program
MS in Environmental Health Sciences
Candidates with undergraduate coursework in calculus, chemistry, and biology are preferred. Common undergraduate majors for admitted applicants: engineering, environmental science, biology, chemistry, other biological, natural, or physical sciences fields, population sciences, and biomedical fields. Common work experience for admitted applicants: Work experience is not required for admission, but successful applicants in past years have worked as lab technicians, student researchers, research scientists, environmental consultants, post-graduate fellows, toxicologists, occupational hygienists, or engineers, as well as for the Peace Corps.

Submissions of GRE scores are optional but recommended for this program, especially if you have no other evidence of quantitative, verbal, or analytical abilities in your application.

In addition to the UC Berkeley application, students must also submit an additional application (https://publichealth.berkeley.edu/admissions/) to the School of Public Health.

MS in Global Health and Environment
Candidates with undergraduate coursework in calculus, chemistry, and biology are preferred. Common undergraduate majors for admitted applicants: engineering, microbiology, environmental science, biology, chemistry, other biological, natural or physical sciences fields, population sciences and biomedical fields. Common work experience for admitted applicants: work experience is not required for admission, but successful applicants in past years have worked as lab technicians, student researchers, research scientists, environmental organizers and advocates, program managers, engineers, post-graduate fellows, in global health programs and for the Peace Corps.

Submissions of GRE scores are optional but recommended for this program, especially if you have no other evidence of quantitative, verbal, or analytical abilities in your application.

In addition to the UC Berkeley application, students must also submit an additional application (https://publichealth.berkeley.edu/admissions/) to the School of Public Health.

PhD in Environmental Health Sciences
For the doctorate degree, applicants should hold an MS or MPH in a related field, as well as display a clear research orientation and firm knowledge of research techniques.

Submissions of GRE scores are optional but recommended for this program, especially if you have no other evidence of quantitative, verbal, or analytical abilities in your application.

The School of Public Health has specific admissions instructions and criteria that are separate from that of the larger campus (above). Please visit the School of Public Health website (https://publichealth.berkeley.edu/admissions/graduate/application-instructions/) for a full list of instructions and deadlines.

Curriculum
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>PB HLTH 220C</td>
<td>Health Risk Assessment</td>
<td>3</td>
</tr>
<tr>
<td>PB HLTH 250A</td>
<td>Epidemiologic Methods I (* Students who have already taken an introductory course in epidemiology may substitute 250B, Epidemiology Methods II)</td>
<td>3</td>
</tr>
<tr>
<td>PB HLTH 142</td>
<td>Introduction to Probability and Statistics in Biology and Public Health</td>
<td>4</td>
</tr>
<tr>
<td>PB HLTH W200</td>
<td>Course Not Available (Students who have an MPH are exempt from the requirement)</td>
<td>1</td>
</tr>
</tbody>
</table>

**Biostatistics - ONE IS REQUIRED**

- PB HLTH 241 Intermediate Biostatistics for Public Health 4
- PB HLTH 245 Introduction to Multivariate Statistics 4

Other courses can be substituted with approval.

**Environmental Health Sciences - Thesis Units**

- PB HLTH 299 Independent Research (2nd year at minimum) 3-6 units, with thesis advisor permission, to be enrolled in during the last year

**ELECTIVE COURSES**

Remaining units are to be chosen from upper division or graduate courses from courses in a range of closely related fields. A recommended list will be provided to students.

- No internship/fieldwork/practicum but fieldwork common
- Master’s Project (Plan II)

**Global Health and Environment MS: Course Requirements**

**environmental health sciences**

**Required**

- PB HLTH 270 Introduction to Environmental Health Sciences 3
- PB HLTH W200 Course Not Available (Students who already have an MPH are exempt from this requirement) 1
- PB HLTH 270A Exposure Assessment and Control 3

**Choose two of the following:**

- CIV ENG 110 Water Systems of the Future 3
- PB HLTH 273 Environmental Determinants of Infectious Disease 3
- PB HLTH 270B Toxicology I 3
- PB HLTH W272A Introduction to Geographic Information Systems for Public Health 3
- PB HLTH W272C Applied Spatial Data Science for Public Health 3
- PB HLTH 290 Health Issues Seminars (Exposure Assessment & Control II [even years]) 3

- PB HLTH 220C Health Risk Assessment (prerequisite: PB HLTH 270B) 3
- PB HLTH 271G Health Implications of Climate Change 3

**biostatistics and epidemiology**

At least three courses are required, including both of the following:

- PB HLTH 142 Introduction to Probability and Statistics in Biology and Public Health 4
- PB HLTH 250A Epidemiologic Methods I (Students who have already taken an introductory course in epidemiology may substitute PB HLTH 250B: Epidemiology Methods II) 3

**Select one of the following:**

- PB HLTH 241 Intermediate Biostatistics for Public Health 4
- PB HLTH 245 Introduction to Multivariate Statistics 4
- PB HLTH 250B Epidemiologic Methods II 4
- PB HLTH 254 Occupational and Environmental Epidemiology 3

**Global Health and Environment THESIS UNITS:**

- PB HLTH 299 Independent Research (3-6 units, with thesis advisor permission, to be enrolled in during the last year) 3-6

**elective courses**

Remaining units are to be chosen from upper division or graduate courses in areas and from courses in a range of closely related fields. A recommended list will be provided to students.

- No internship/fieldwork/practicum but fieldwork common
- Master’s Project (Plan II)

**Normative Time Requirements**

**Normative Time to Advancement: 4 Semesters**

The normal time from entry into the doctoral program to advancement to candidacy is four semesters although it is generally somewhat less for students who complete a master’s degree in Environmental Health Sciences (EHS) at Berkeley.

**Total Normative Time: 10 Semesters**

**Time to Advancement**

**Curriculum**

Although there are no formal course requirements for the doctoral degree, students are expected to be well-versed in the material covered in the following courses at the time of the qualifying examination. The only exceptions are: 1) PB HLTH 293 Doctoral Seminar once a year and 2) if the doctoral degree candidate does not have an MPH, they are required to take PB HLTH W200 Course Not Available.

- PB HLTH 270B Toxicology I 3
- PB HLTH 241 Intermediate Biostatistics for Public Health 4
- PB HLTH 220C Health Risk Assessment 3
- PB HLTH 250B Epidemiologic Methods II 4
- PB HLTH 270 Introduction to Environmental Health Sciences 3
- PB HLTH 270A Exposure Assessment and Control 3
- PB HLTH 271E Science and Policy for Environment and Health 3
At least three, but no more than four members. Dissertation committees must be chaired (or co-chaired) by a UC Berkeley Academic Senate member. Doctoral students are expected to meet with all members of the dissertation committee at least annually to review progress toward completion of the dissertation research. Once a dissertation committee is approved, the student is strongly encouraged to organize a full committee meeting once per semester to present progress, identify any obstacles, provide funding plans, and an updated timeline for completion.

**Dissertation Exit Talk**

PhD students are expected to host a 1-hour Exit Talk after their dissertation has been approved and submitted. This Exit Talk is a public celebration of the student’s dissertation research and open to the student’s advisors, friends, family, and the general EHS community. The talk is approximately 45 minutes, with 15 min for questions from the general audience. This talk is NOT a formal dissertation defense, and students will not be questioned by their dissertation committee.

**Required Professional Development**

**Teaching**

Every doctoral student in epidemiology is expected to serve for at least one semester as a Graduate Student Instructor (GSI) before taking the qualifying examination. Teaching fortifies theoretical knowledge gained in coursework, prepares students for academic careers, and provides service to the division and the School of Public Health. GSIs are required to complete a 300-level semester-long teaching pedagogy seminar before or during their first teaching appointment at Berkeley. The Graduate Division also mandates that first-time GSIs take the on-line course on GSI Professional Standards and Ethics Course and attend a teaching conference. For more information, please see the GSI website (http://gsi.berkeley.edu/).

**Ethics Training**

Knowledge of how to conduct ethical research is essential. In addition to a required course in research ethics in epidemiology, all doctoral students must complete the UC Berkeley Online Human Subjects Training prior to taking the qualifying examination.

**Academic Residence Requirement**

Doctoral students must register and enroll in at least 12 units per semester for a minimum of four semesters of academic residence at Berkeley.