DOCTOR OF PHILOSOPHY IN
THE FIELD OF HEALTH AND
BIOMEDICAL DATA SCIENCE,
APPLIED BIOINFORMATICS
CONCENTRATION

Program Co-Directors: K. Crandall and Y. Ma

The doctor of philosophy in health and biomedical data science develops data science leaders for applications in public health and medicine. The program advances the field by:

- Providing rigorous training in the fundamentals of health and biomedical data science.
- Fostering innovative thinking for the design, conduct, analysis, and reporting of public health research studies.
- Providing practical training through real-world research opportunities at research centers and institutes directed by departmental faculty.

Students choose one of two concentrations: applied biostatistics or applied bioinformatics. The program offers a unique blend of the two disciplines, which helps practitioners become successful collaborators in interdisciplinary research. Each concentration focuses on the foundations of the respective discipline to acquire fundamental knowledge and experience in the subject area while gaining core knowledge in the foundations of the other concentration.

Visit the program website (https://publichealth.gwu.edu/content/health-and-biomedical-data-science-phd/) for more information.

REQUIREMENTS

The following requirements must be fulfilled: 72 credits, including 14 credits in core courses, 12 credits in elective courses, 1 credit in practicum/teaching/research courses, and 12 to 24 credits in dissertation research.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tr>
<td></td>
<td><strong>Required</strong></td>
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<tr>
<td></td>
<td>Core courses</td>
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<tr>
<td>PUBH 6080</td>
<td>Pathways to Public Health</td>
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<tr>
<td>PUBH 6421</td>
<td>Responsible Conduct of Research</td>
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<tr>
<td>PUBH 6850</td>
<td>Introduction to SAS for Public Health</td>
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<td>Research</td>
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<tr>
<td>PUBH 6851</td>
<td>Introduction to R for Public Health Research</td>
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<tr>
<td>PUBH 6852</td>
<td>Introduction to Python for Public Health</td>
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<tr>
<td>PUBH 6860</td>
<td>Principles of Bioinformatics</td>
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<tr>
<td>PUBH 6886</td>
<td>Statistical and Machine Learning for Public</td>
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<td></td>
<td>Health Research</td>
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<tr>
<td>PUBH 8870</td>
<td>Statistical Inference for Public Health</td>
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<td>Research I</td>
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<tr>
<td>PUBH 8099</td>
<td>Doctoral Topics (Cross Cutting Concepts in</td>
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<td>Public Health topic only</td>
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<td><strong>Concentration-specific courses</strong></td>
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<tr>
<td>PUBH 6859</td>
<td>High Performance and Cloud Computing</td>
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<td>PUBH 6861</td>
<td>Public Health Genomics</td>
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<tr>
<td>PUBH 6884</td>
<td>Bioinformatics Algorithms and Data Structures</td>
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<tr>
<td>PUBH 6885</td>
<td>Computational Biology</td>
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<tr>
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<td><strong>Electives</strong></td>
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<td>A minimum of 21 credits in elective courses.</td>
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<td>See program guide for options.</td>
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<td><strong>Practicum/teaching/research</strong></td>
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<tr>
<td>UNIV 0250</td>
<td>Graduate Teaching Assistant Certification</td>
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<tr>
<td>PUBH 6897</td>
<td>Research in Biostatistics and Bioinformatics</td>
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<td>taken for 1 credit</td>
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<td></td>
<td><strong>Dissertation research</strong></td>
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<tr>
<td>PUBH 8999</td>
<td>Dissertation Research (12 to 24 credits)</td>
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