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

Program Director: Keith Crandall

The doctor of philosophy in health 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: biostatistics or 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 additional information.

ADMISSIONS

Visit the Milken Institute School of Public Health website (https://publichealth.gwu.edu/) for additional information about academic programs and information about GWSPH. Graduate admissions information, including application requirements and deadlines, can be found on the GWSPH Graduate Admissions website (https://publichealth.gwu.edu/admissions/graduate-admissions/).

REQUIREMENTS

The following requirements must be fulfilled: 72 credits, including 11 credits in core courses, 18 credits in required concentration courses, at least 18 credits in elective courses, 1 credit in research leadership, and 12 to 24 credits in dissertation research. Additional requirements include, but are not limited to, completion of a graduate teaching assistantship program certificate.

Code	Title	Credits
Required		
Core courses		
PUBH 6080	Pathways to Public Health	
PUBH 6850	Introduction to SAS for Public Health Research	
PUBH 6851	Introduction to R for Public Health Research	
PUBH 6852	Introduction to Python for Public Health Research	
PUBH 6860	Principles of Bioinformatics	
PUBH 6886	Statistical and Machine Learning for Public Health Research	
PUBH 8001	Doctor of Philosophy Seminar on Cross-Cutting Concepts in Public Health	
PUBH 8475	Research Ethics and Integrity in Domestic and International Research *	
or PUBH 8099	Doctoral Topics	

Code	Title	Credits
Research Leadership		
PUBH 8413	Research Leadership	
Concentration-specific courses		
15 credits in bioinformatics courses		
PUBH 6854	Applied Computing in Health Data Science	
PUBH 6859	High Performance and Cloud Computing	
PUBH 6861	Public Health Genomics	
PUBH 6868	Quantitative Methods	
PUBH 6884	Bioinformatics Algorithms and Data Structures	
PUBH 8885	Computational Biology	
Electives		
A minimum of 18 credits in elective courses, which must include at least 3 credits in biostatistics courses and at least 3 credits in cognate area courses.		
Dissertation research		
PUBH 8999	Dissertation Research (taken for 12 to 24 credits)	
Additional requirements		
Additional program requirements include, but are not limited to, completion of the University's Graduate Teaching Assistantship Program (GTAP) certificate, which includes enrollment in UNIV 0250. *		

*Visit the GTAP website (https://gradfellowships.gwu.edu/graduate-teaching-assistantship-program-gtap/) for additional information.

Comprehensive examination

After completion of the course requirements, students take a comprehensive examination based on core courses. Upon successful completion of the examination, students officially enter the doctoral candidacy phase of the program.

Dissertation

Doctoral candidates prepare a written dissertation research proposal with guidance from their dissertation advisor and committee. Each doctoral candidate gives an oral presentation and defense to the committee who determines the student's readiness to commence the dissertation.

Doctoral candidates are required to conduct original research on a contemporary problem or issue. The dissertation includes at least one written manuscript and an oral presentation and defense.

Additional requirements for degree completion:

- Collaborative IRB Training Initiative (CITI) training requirement: All students must complete training regarding human subject protection regulation and the Health Insurance Portability and Accountability Act of 1996 (HIPAA). To fulfill this requirement, students must complete the CITI course in The Protection of Human Research Subjects.
- Integrity quiz and plagiarism requirement: Students must review the George Washington University Code of Academic Integrity (https://students.gwu.edu/code-academic-integrity/), take the quiz within their first semester of study, and ensure documentation is submitted to the SPH Office of Student Records.
- Professional enhancement requirement: Students must attend/participate in eight hours of epidemiology conferences. To be cleared for graduation, students must submit required documentation of applicable professional enhancement activities to the SPH Office of Student Records.
- Completion of a graduate teaching assistantship program certificate. See the GTAP website (https://gradfellowships.gwu.edu/graduate-teaching-assistantship-program-gtap/) for additional information.
- Grade-point average: A minimum program grade-point average of 3.0.
- Time limit: The degree must be completed within seven years of matriculation.

Additional information regarding School of Public Health doctoral programs is available on the SPH website (https://publichealth.gwu.edu/academics/programs/doctoral/).