Milken Institute School of Public Health
THE GEORGE WASHINGTON UNIVERSITY

BS/MS Health Data Science Dual Degree Program 2026-2027

Note: All curriculum revisions will be updated immediately on the website http://www.publichealth.gwu.edu

PROGRAM LEADERSHIP

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BACKGROUND

The George Washington University Milken Institute School of Public Health (SPH) offers a unique opportunity to students interested in public health and biomedical research. To further effectively train a workforce in public health and related fields with strong data science and data analytics skills, we have developed a dual degree where undergraduate bachelor of science (BS) students at GW can earn a Master of Science in Health Data Science (BS/MS HDS). Students can complete both the BS and MS degrees more efficiently and at a lower cost than had the degrees been completed separately. The BS/MS HDS program is a multi-level program, meaning that students are concurrently enrolled in one undergraduate program and one graduate program. The degrees will be awarded in different semesters.

BS/MS HDS PROGRAM

This dual degree program is designed for undergraduates in a BS program at GW (e.g., health data science, public health, biology, neuroscience, computer science, statistics, mathematics, bioengineering, etc) or who have already completed some undergraduate coursework in health data science at other universities, with an interest in adding health data science expertise to their existing skillsets. The BS/MS HDS program strives to matriculate leaders in public health and biomedical researchers who are committed to life-long learning and to improving the health and well-being of our local, national, and international communities. This is an appropriate program for pre-professional students who are interested in public health issues and translational research.

MISSION

The mission of this program is to train the next generation of leaders and practitioners in public health, medicine, and data analytics. Students in the program develop practical skills for innovative data analysis and will be trained in becoming excellent communicators of scientific findings in public health and biomedical research. The program takes advantage of the rich bioinformatics and biostatistical resources at GW and in the nation's capital and is designed to prepare students to be independent practitioners and collaborators in interdisciplinary research.

PREREQUISITES
All applicants to the BS/MS HDS program must have completed the following prerequisites with a minimum overall grade-point average of 3.5 to be considered for admission:

- a course in undergraduate statistics (e.g., PUBH 2142)
- a course in undergraduate biology (e.g., BISC 1111, BISC 1112, PUBH 2110)
- a course in undergraduate computer science or programming (e.g., CSCI 1011, CSCI 1012, PUBH 4201)

ADMISSION REQUIREMENTS
Students must be admitted to a GW BS program before applying to the BS/MS HDS program. Students are encouraged to apply to the BS/MS HDS program any time after their sophomore year.

The dual degree application is submitted online and will be activated annually during the application period after the spring semester has concluded. Applications are due in early June (check website for exact date). Incomplete or late applications will not be considered. Admission to the program is made on a selective and space available basis. Applications are reviewed holistically, looking at an applicant's academic strengths, commitment to the data science, leadership qualities, and other attributes. The application requires the following:

1. A personal statement or statement of purpose
2. One to two recommendation letters/forms, preferably from GW faculty (see application for details)
3. Resume or curriculum vitae (CV)
4. Unofficial transcript from BanWeb

GRE scores are not required, but will be accepted if submitted.

Admitted students are considered to be provisionally admitted. Admission is conditional upon on earning a B or higher in the crossover courses (see each program's tab). Students who do not obtain a B or higher in all courses will not be eligible to continue in their dual degree program.

COMPETENCIES
Upon completion of the BS/MS HDS program students will possess the following competencies.

1. **Programming:** Develop skills in programming, data structures, algorithms, machine learning, high-performance computing and apply these skills to create approaches that facilitate biological data analysis.
2. **Biology:** Develop a basis of knowledge in biology and evaluate biological data generation technologies.
3. **Statistics:** Apply statistical research methods in the context of molecular biology, genomics, medical, and population genetics research.
4. **Foundational Knowledge:** Interpret and synthesize the various foundational concepts of bioinformatics, including genomics, algorithms, and other key tools used in bioinformatics.
5. **Conceptual Integration:** Integrate concepts and data across fields of computer science, statistics, data science, biology, and health sciences through bioinformatics.

GRADUATION REQUIREMENTS

All students accepted to this joint degree must follow the policies outlined in the GW Bulletin and the GWSPH Student Handbook. These include, but are not limited to:

- Minimum Grade Point Average (GPA)
- Minimum Course Grades
- Approved Guided Electives
- Maximum Credit Allowances
- University General Education
- Double Majors and Double Degrees
- Double Counting
- Continuous Enrollment
- Maximum Time to Degree
- Required Minimum Degree Credits
- Transfer Credit Policy
- Field Experience, Undergraduate Research, Independent Study, and Study Abroad
- CITI Training
- Integrity Quiz and Plagiarism
- Professional Enhancement (PE) Hours

ADVISING NOTES

Students are expected to fulfil all degree and credit requirements of both their undergraduate GW major as well as their graduate MS HDS degree to graduate. Up to 9 crossover credits chosen from the MS HDS program, as allowed by their BS degree program and with the approval from the MS HDS Program Director, may count towards both the undergraduate and graduate degree. An additional 27 graduate credits are required for the MS HDS degree to graduate.

As part of the MS HDS degree, students will need to successfully defend a master's thesis or presentation of a research report.

CURRICULUM

Students may apply up to 9 credits of graduate MS coursework towards their undergraduate major. Students are encouraged to take up to 9 credits of the below courses as part of their dual degree program as these courses are part of the MS core.

MS in Health Data Science Course	**Waived Undergraduate Course**
PUBH 6850 Introduction to SAS for Public Health Research (1 credit)	Elective or Other advisor-approved course
PUBH 6851 Introduction to R for Public Health Research (1 credit)	Elective or Other advisor-approved course
PUBH 6852 Introduction to Python for Public Health Research (1 credit)	Elective or Other advisor-approved course
PUBH 6854 Applied Computing in Health Data Science (3 credits)	One of the following courses: PUBH 4201 Practical Computing (3 credits) or CSCI 1011 Introduction to Programming with Java (3 credits) or CSCI 1012 Introduction to Programming with Python (3 credits) or Other advisor-approved course

MS in Health Data Science Course	Waived Undergraduate Course
PUBH 6860 Principles of Bioinformatics (3 credits)	PUBH 3201 Introduction to Bioinformatics (3 credits) or Other advisor-approved course
PUBH 6867 Health Data Visualization (3 credits)	PUBH 3242 Health Data Visualization (3 credits) or Other advisor-approved course
PUBH 6868 Quantitative Methods (3 credits)	Elective or Other advisor-approved course
PUBH 6884 Bioinformatics Algorithms and Data Structures (3 credits)	One of the following courses: PUBH 4202 Bioinformatics Algorithms and Data Structures (3 credits) or CSCI 1112 Algorithms and Data Structures (3 credits) or Other advisor-approved course
PUBH 6886 Statistical and Machine Learning for Public Health Research (3 credits)	Elective or Other advisor-approved course