

# Milken Institute School of Public Health

THE GEORGE WASHINGTON UNIVERSITY

## BS/MS Health Data Science Dual Degree Program 2025-2026

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

### MS HDS PROGRAM DIRECTOR

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### BACKGROUND

The George Washington University Milken Institute School of Public Health (GWSPH) offers a unique opportunity to students interested in public health and biomedical data analysis. 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 program for students to earn both a BS and MS degree. This dual degree program is designed for undergraduates in a BS program at GW (e.g., public health, biology, neuroscience, computer science, statistics, mathematics, bioengineering, etc.) different from the BS Health Data Science (HDS) program (for those see our BS HDS/MS HDS dual degree program) or students who have already completed some undergraduate coursework on health data science at other universities, with an interest in adding health data science expertise to their existing skillsets. This program would result in the earning of a BS degree in a student's current undergraduate program and a MS degree in Health Data Science from GWSPH (BS/MS HDS program). The program is designed for George Washington University residential and non-residential undergraduates.

### BS/MS HDS PROGRAM

Students enrolled in any BS program at GW (except BS HDS) or students who have already completed some undergraduate coursework on other Health Data Science programs at other universities can benefit from this opportunity to acquire a dual degree by joining the BS/MS HDS program. This dual degree 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 GWU 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 dual 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
- a course in undergraduate biology
- a course in undergraduate computer science

## ADMISSION REQUIREMENTS

Students must be admitted to a 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 application requires the following:

- A personal statement
- Complete the [BS/MS Faculty Recommendation Form](#)
- Your CV/resume
- Your unofficial transcript from BanWeb
- GREs are not required, but scores will be accepted.

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 data science, leadership qualities, and other attributes.

## COMPETENCIES

Upon completion of the dual 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.

## BS/MS HDS GRADUATION REQUIREMENTS

1. **Total Credit Requirement.** Graduation requirements for the BS/MS HDS dual degree will follow graduation requirements in the student's corresponding BS program, with up to 9 crossover credits chosen from the MS HDS program as allowed by their BS degree program and with the approval from the Program Director. Then an additional 27 graduate credits are required for the MS HDS degree to graduate.
2. **Course Requirements.** Successful completion of a related undergraduate BS program (consult with advisors for the applicability of your BS program to the BS/MS HDS program) and completion of the MS HDS program is required for the dual BS/MS HDS degree.
3. **Master's Thesis or Research Report:** Successful defense of a Master's Thesis or presentation of a Research Report.
4. **Grade point average:** A minimum program grade-point average of B (3.0) for the MS HDS.
5. **Time Limit Requirement:** The degree must be completed within 10 years.

6. **Ethics/Professional Skills Requirement:** Participate in department-led ethical and professional skills training.
7. **Professional Enhancement requirement:** Students admitted to the MS HDS program must participate in 16 hours of advisor pre-approved Public Health-related lectures, seminars, symposia and/or conferences related to the appropriate field of study specifically focused on research and research ethics. Students must submit documentation of Professional Enhancement activities to the SPH Office of Student Records. Instructions can be found here:  
<https://publichealth.gwu.edu/academics/forms>.
8. **CITI Training requirement:** All students are required to complete training regarding human subject protection regulation and the Health Insurance Portability and Accountability Act of 1996 (HIPAA). To fulfill this requirement, you must complete the Collaborative IRB Training Initiative (CITI) Course in The Protection of Human Research Subjects.
9. **Integrity Quiz & Plagiarism Requirement:** All students are required to review the George Washington University Code of Academic Integrity and take the quiz within their first semester of study. The Code of Integrity and step-by-step instructions can be found here:  
<http://publichealth.gwu.edu/integrity>

## CREDIT DISTRIBUTION

<b>Undergraduate courses for the BS</b>
<i>Follow requirements in the student's corresponding BS program</i>

<b>Graduate courses for the MS HDS (36 total credits including up to 9 crossover credits*)</b>		
PUBH 6850	1	Introduction to SAS for Public Health Research
PUBH 6851	1	Introduction to R for Public Health Research
PUBH 6852	1	Introduction to Python for Public Health Research
PUBH 6860	3	Principles of Bioinformatics
PUBH 6884	3	Bioinformatics Algorithms and Data Structures
PUBH 6854	3	Applied Computing in Health Data Science
PUBH 6868	3	Quantitative Methods
PUBH 6886	3	Statistical and Machine Learning for Public Health Research
PUBH 68xx	11-16	Electives – see MS HDS program guide
PUBH 6897	1-4	Research in Biostatistics and Bioinformatics
PUBH 6898	1-3	Master of Science Thesis
PUBH 6080	0	Pathways to Public Health
<b>Total graduate credits</b>		<b>36 credits</b>

*\*Students can take up to 9 credits of the MS courses listed above instead of the corresponding course in their BS program (either towards their major/minor or as a general elective) if approved by the HDS graduate advisor and their undergraduate advisor.*