

Milken Institute School of Public Health

THE GEORGE WASHINGTON UNIVERSITY

Milken Institute School of Public Health Department of Epidemiology

Any BA or BS/Master of Science in Public Health Microbiology and Emerging Infectious Diseases

Dual Degree

2026-2027

Program Guide

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

MS PROGRAM CO-DIRECTOR

Dr. Irene Kuo
Associate Research Professor
Department of Epidemiology
950 New Hampshire Avenue, NW, 5th Floor
Washington, DC 20052
Tel: 202-994-0367
Email: ikuo@gwu.edu

MS PROGRAM CO-DIRECTOR

Dr. Mimi Ghosh
Associate Professor
Department of Epidemiology
800 22nd Street, NW, 7th Floor
Washington, DC 20052
Tel: 202-944-5740
Email: mghosh@gwu.edu

BACKGROUND

The George Washington University Milken Institute School of Public Health (GWSPH) offers a unique opportunity to students interested in public health microbiology and emerging infectious diseases. To further effectively train a workforce in public health lab sciences and related fields with strong epidemiology, we have developed a dual degree program for students earning a BA or BS at GW to earn a MS degree in Public Health Microbiology and Emerging Infectious Diseases (PHMEID). This dual degree program is open to all GW students currently enrolled in BA or BS program with an interest in expanding their education to public health laboratory sciences and infectious disease focused epidemiology. GW students from all undergraduate degree programs (including those at GWSPH) are welcome to apply but this program may be of particular interest to lab-based science or public health majors or students preparing for pre-professional health degrees. This program would result in the earning of a BA/BS degree and MS degree Public Health Microbiology and Emerging Infectious Diseases (Any BA or BS/MS PHMEID program). The program is designed for George Washington University residential undergraduates.

ANY BS OR BA/MS PHMEID PROGRAM

The GWSPH will accept outstanding students each year to the Any BA or BS/MS Public Health Microbiology and Emerging Infectious Diseases (Any BA or BS/MS PHMEID). As incentives to move beyond the traditional undergraduate curriculum, GWSPH offers participants the opportunity to complete both their undergraduate degree and the MS degree more efficiently than if the degrees been completed separately. The Any BA or BS/MS PHMEID program is a dual degree program, meaning that students

are concurrently enrolled in one undergraduate program and one graduate program, though graduate in different semesters. Students apply to the dual degree while earning their undergraduate degree at GW. If accepted to the program, undergraduate students may take graduate coursework while earning their BS or BA degrees. Up to 9 credits of graduate coursework may be applied to their undergraduate degree program.

MISSION

The mission of the MS degree in Public Health Microbiology and Emerging Infectious Diseases is to provide training to the next generation of public health professionals with advanced knowledge in disease mechanisms—particularly those involving microbial pathogens. The program emphasizes the application of cutting-edge laboratory techniques and epidemiologic skills that are essential for the prevention and control of infectious disease-related public health challenges. Graduates of the program will gain a comprehensive understanding of key laboratory, clinical, and public health aspects of microbial pathogens. They will also develop expertise in epidemiologic methods and the application of cutting-edge laboratory technologies to combat infectious diseases. Core areas of focus include: the design and analysis of epidemiologic data, emerging infections including tropical infectious diseases, and the application of genomics and other advanced techniques. MS graduates will be prepared for careers in academic and industrial research laboratories, international health organizations, NGOs, private consulting firms, and federal, state, or local public health agencies and laboratories. Their technical knowledge and population-based perspective will be valuable in a range of professional settings. This program addresses the urgent national need for a skilled workforce in emerging infections and biodefense, as well as the global demand for training in neglected diseases of poverty that affect many developing nations.

PREREQUISITES

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

- At least 12 credits in the biological sciences other than botany
- At least 3 credits of chemistry

ADMISSION REQUIREMENTS

Students must be admitted to a GW BA or BS program before applying to this dual degree program. Students are encouraged to apply online to the program any time after their sophomore year. The application requires the following:

- A personal statement
- A CV/resume
- An unofficial transcript from BanWeb
- Recommendation from GW faculty member

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 public health, leadership qualities, and other attributes.

GOALS

The goals of the MS PHMEID are to ensure that graduates:

- Identify the biological complexities of microbial pathogens and the diseases they cause
- Recognize the major epidemiologic and clinical features of microbial disease
- Identify how new biotechnologies can be applied to the study and control of microbial pathogens
- Develop an in-depth understanding of epidemiologic principles and practice
- Apply the principles of epidemiology, microbiology, and public health practice toward the detection, surveillance, investigation, and control of microbial diseases

COMPETENCIES

Upon completion of the MS PHMEID program, graduates will be able to:

- Identify the public health presentation and impacts of infectious agents.
- Describe the principles of microbial disease epidemiology.
- Plan and implement studies to analyze patterns of disease and to evaluate the public health impact.
- Interpret and communicate results of outbreak investigations and analytic studies.
- Define public health roles and procedures of biomedical and public health laboratories
- Identify currently used laboratory techniques and principles in public health microbiology and genomics that are used to distinguish characteristics of pathogens.
- Explain modes of transmission, pathogenic mechanisms, and immune responses as well as challenges for developing successful vaccines and/or drugs

CROSSOVER CREDITS

Students should follow the requirements of their BS or BA program. In addition to completing the course requirements for the student's chosen undergraduate major(s) and any applicable minor, students may apply the below graduate courses (9 credits) courses towards their undergraduate degree requirements, likely as general electives.

- PUBH 6002 Biostatistical Applications for Public Health (3 credits) ¹

¹ Students who take PUBH 2142 Introduction to Biostatistics (or similar course) instead of PUBH 6002 and receive an A may, with their MS advisor's approval, waive and replace PUBH 6002 with 3 credits of pre-approved graduate electives.

- PUBH 6003 Principles and Practice of Epidemiology (3 credits) ²
- **ONE** of the following courses:
 - PUBH 6276 Public Health Microbiology (3 credits)
 - PUBH 6278 Public Health Virology (3 credits)
 - PUBH 6861 Public Health Genomics (3 credits)

To earn the MS PHMEID, students must take the remainder of the 36 graduate credits required for the MS degree. These credits are distributed across foundation, selectives, elective, skills building, and thesis/capstone courses. It is expected that most students will complete the degree in approximately two years to three years, depending on the course load taken each semester.

Students can and are encouraged to take additional MS courses while still completing their undergraduate requirements, but should contact their MS academic advisor on which MS courses to take in order to ensure they are taken in the proper order. Any graduate-level credits beyond the 9 credits of specified crossover credits will be counted toward EITHER the undergraduate degree requirements or the 36-credit requirement for the MS degree, but CANNOT be counted toward both. Students cannot take PUBH 6280 before completing the undergraduate degree and matriculating to the MS program.

² Students who take PUBH 3131 Epidemiology (or similar course) and receive a B or better may, with their MS advisor's approval, waive and replace PUBH 6003 with 3 credits of pre-approved graduate electives.