Mission
The mission of the master of science (MS) in the field of public health microbiology and emerging infectious diseases degree program is to provide training to a new generation of public health professionals to expand knowledge and expertise in the areas of disease mechanisms, with an emphasis on microbial pathogens, the use and application of modern biotechnologies, and in epidemiologic skills relevant to the prevention and control of problems in the community arising from infectious diseases.

Graduates of the MS program have an in-depth understanding of the major laboratory, clinical, and public health aspects of humankind’s microbial pathogens, and acquire epidemiologic skills relevant to the prevention and control of problems arising from infectious diseases and modern biotechnologies. Areas of emphasis include the design and analysis of epidemiologic data; emerging infections; tropical diseases; and applications of genomics, proteomics, and bioinformatics. MS graduates are employed in academic and industrial research laboratories, international health agencies, NGOs, and private consulting groups. In addition, they may work in federal, state, and local public health agencies or state and local public health laboratories where their technical expertise and population-based perspective are extremely useful. Students earning this degree help meet a national demand that has reached critical proportions for a trained workforce in biodefense and emerging infections, and an international demand for training in diseases that affect the developing countries.

Goals
The goals of the MS program in the field of public health microbiology and emerging infectious diseases 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 (including genomics, proteomics, and bioinformatics) 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

REQUIREMENTS

Prerequisite requirements
- Bachelor’s degree in the life sciences or at least 12 credits in the biological sciences other than botany
- Chemistry ≥ 3 credits
- 1 semester of calculus

Course requirements
Most students are able to complete the 45 credit degree in approximately two to three years, depending on the workload taken each semester.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>PUBH 6002</td>
<td>Biostatistical Applications for Public Health</td>
<td>3</td>
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<tr>
<td>PUBH 6003</td>
<td>Principles and Practices of Epidemiology</td>
<td>3</td>
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<tr>
<td>PUBH 6004</td>
<td>Environmental and Occupational Health in a Sustainable World</td>
<td>3</td>
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<tr>
<td>PUBH 6275</td>
<td>Essential Public Health Laboratory Skills</td>
<td>3</td>
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<tr>
<td>PUBH 6245</td>
<td>Infectious Disease Epidemiology</td>
<td>3</td>
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<tr>
<td>PUBH 6247</td>
<td>Design of Health Studies</td>
<td>3</td>
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<tr>
<td>PUBH 6249</td>
<td>Use of Statistical Packages: Data Management and Data Analysis</td>
<td>3</td>
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<tr>
<td>PUBH 6259</td>
<td>Epidemiology Surveillance in Public Health</td>
<td>3</td>
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<tr>
<td>PUBH 6262</td>
<td>Introduction to Geographic Information Systems</td>
<td>3</td>
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<tr>
<td>PUBH 6276</td>
<td>Health Microbiology</td>
<td>3</td>
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<tr>
<td>PUBH 6277</td>
<td>Public Health Genomics</td>
<td>3</td>
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<tr>
<td>PUBH 6278</td>
<td>Public Health Virology</td>
<td>3</td>
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<tr>
<td>MICR 8210</td>
<td>Infection and Immunity</td>
<td>3</td>
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Program-specific elective courses
9 credits from the following:
PUBH 6127 Germs: An Introduction to Environmental Health Microbiology
PUBH 6132 Water, Sanitation, and Hygiene (WASH) in Low-Income Countries
PUBH 6239 Epidemiology of Foodborne and Waterborne Diseases
PUBH 6242 Clinical Epidemiology and Public Health: Reading the Research
PUBH 6243 Topics in Clinical Epidemiology and Public Health: Reading the Research
PUBH 6250 Epidemiology of HIV/AIDS
PUBH 6252 Advanced Epidemiology Methods
PUBH 6253 Issues in HIV Care and Treatment
PUBH 6263 Advanced GIS
PUBH 6270 HIV/AIDS Surveillance
PUBH 6271 Disaster Epidemiology
PUBH 6299 Topics in Epidemiology and Biostatistics
PUBH 6358 Vaccine Policy
PUBH 6399 Topics in Health Policy (i.e. Homeland Security and Public Health)
PUBH 6484 Prevention and Control of Vector Borne Diseases
PUBH 6487 Emerging Zoonotic Diseases and Global Food Production
MICR 8230 Molecular and Cellular Immunology
MICR 6292 Tropical Infectious Diseases

Field/labatory experience and final project (4 credits)
PUBH 6016 Field/Laboratory Experience
PUBH 6280 MEID Final Project

Graduation requirements
1. Graduate Credit Requirement: 45 graduate credits required.
2. Course Requirements: Successful completion of the required courses.
3. Grade-Point Requirements: An overall GPA of 3.0 (B average).
4. Time Limit Requirement: The degree must be completed within four years.
5. Transfer Credit Policy: Up to 12 credits that have not been applied to a previous graduate degree may qualify to be transferred to the MS program. Credits must have been earned from an accredited institution in the last 3 years with a grade-point average of 3.0 or better.

Students are also expected to participate in a poster presentation at GW Research Day.