

### Program Director

Sean D. Cleary, PhD, MPH  
Ross Hall, Suite 120  
2300 I Street NW  
Washington, DC 20037  
Tel: 202-994-5757  
Fax: 202-994-0082  
Email: [sphsdc@gwumc.edu](mailto:sphsdc@gwumc.edu)

The Department of Epidemiology and Biostatistics offers the degree of Master of Science in Epidemiology. The goals of the MS degree are to prepare students for careers in industry or academia and to prepare students for continued study in a doctoral program. The program includes coursework that focuses on theoretical and applied epidemiological and statistical methods. Comprehensive examinations are required.

If desired, a student may apply for admission to the Ph.D. degree program prior to completing the M.S. degree, in which case no more than 24 credit hours from the M.S. degree may be applied to the Ph.D. course work requirements. In this instance, the student will be required to take a minimum of 27 additional credit hours of coursework. The distribution of these courses between epidemiology and statistics will depend on the nature of the Master's degree and whether the transferred credit hours would be used to defray epidemiology and statistics course work.

At the completion of the MS program in Epidemiology students will be able to:

- Demonstrate proficiency in basic epidemiology concepts, e.g., formulate hypotheses and research aims, select appropriate study design, identify risk and/or protective factors that contribute to disease outcomes, develop analytic plans, and identify bias.
- Demonstrate competence using standard statistical software packages to manage and analyze primary data or conduct secondary data analyses to address research questions
- Demonstrate proficiency in data analysis and interpretation of results, including discussion of threats to internal validity, and compose a formal presentation or report
- Describe and apply methods to conduct sound ethical research

### Admissions Requirements

Applicants must hold an undergraduate degree from an accredited institution of higher learning. Applicants should have academic backgrounds of excellence, usually with majors, or equivalent, in the fields in which they intend to study for advanced degrees. Normally, a B average (or equivalent) from an accredited college is required. With evidence of special promise, such as high Graduate Record Examination scores, an applicant whose academic record falls short of a B average may be accepted on a conditional basis. Meeting the minimum requirements does not assure acceptance. The departments may, and often do, set higher admission standards. Moreover, the number of spaces available for new graduate students limits the number who can be accepted. Students who apply in their senior year must provide evidence of the completion of their baccalaureate work before registration in Columbian College is permitted. Applicants should be aware that graduate courses taken prior to admission while in non-degree status are not used in assessing admissibility to degree programs and may not be transferable into those programs. Applications are available online at <http://www.gwu.edu/apply/graduateprofessional>. For reporting GRE general test scores use the following institutional code: 5246.

If desired, a student may apply for admission to the Ph.D. degree program prior to completing the M.S. degree, in which case no more than 24 credit hours from the M.S. degree may be applied to the Ph.D. course work requirements. In this instance the student will be required to take a minimum of 27 additional credit hours of coursework. The distribution of these courses between epidemiology and statistics will depend on the nature of the Master's degree and whether the transferred credit hours would be used to defray epidemiology and statistics course work. Full information about the Graduate Admissions

**Minimum Prerequisite Courses for Admission Consideration (or equivalents to these GW courses)**

The courses listed below (or equivalents) are prerequisites for admission consideration, and **MUST** appear on your transcript. Submit your MS Epidemiology program admission application only after you have completed all of the following courses:

BISC	011	Introductory Biology: Cells and Molecules	4	Lecture (3 hours), laboratory (1 credit/3 hours). Nutrition and metabolism, cellular and developmental biology, genetics, and molecular biology of plants and animals.
BISC	012	Introductory Biology: Biology of Organisms	4	Lecture (3 hours), laboratory (1 credit/3 hours). Concepts and methods in the study of whole organisms. Evolutionary theory; population biology; diversity of plants, animals, fungi, and microorganisms; ecology and behavior; and animal structure and function.
MATH	031	Single-Variable Calculus I	3	Limits and continuity. Differentiation and integration of algebraic and trigonometric functions with applications.
MATH	032	Single-Variable Calculus II	3	The calculus of exponential and logarithmic functions. L'Hopital's rule. Techniques of integration. Infinite series and Taylor series. Polar coordinates. Prerequisite: Math 31

**Additional Course Requirements**

The courses listed below are "Additional Course Requirements." Applicants lacking these courses (or equivalents to these GW courses) will be considered for admission, but, if admissible, will be admitted conditionally with the expectation that these courses will be satisfactorily completed within two semesters following matriculation in the program. These credits do not count as credit toward the 33 credit graduation requirement, nor are grades earned in these additional courses reflected in the overall grade point average.

STAT or	183	Intermediate Statistical Laboratory: Statistical Computing Packages	3 or	Application of program packages (e.g., SAS, SPSS) to the solution of one-, two- and k-sample parametric and nonparametric statistical problems. Basic concepts in data preparation, modification, analysis and interpretation of results. Prerequisite: an introductory statistics course.
PubH	249	Use of Statistical Packages: Data Management and Data Analysis	3	This course familiarizes the student with one of the most widely used database management systems and statistical analysis software packages, the SAS System, operating in a Windows environment. Throughout the course, several database management system techniques and data analytical strategies for the appropriate analysis of datasets obtained from a variety of studies will be presented. Statistical techniques covered include linear regression, analysis of variance, logistic regression, and survival analysis.

## MS Epidemiology Degree Requirements

Course Distribution Summary	Credits
Core Courses <ul style="list-style-type: none"> <li>• Public Health (16 Credits)</li> <li>• Statistics (6 Credits)</li> </ul> Note: Each student must enroll in a public health topics course (PubH 209) that covers a public health topic in environmental and occupational health, health administration, health policy or social behavioral sciences.	22
Approved Elective Courses <ul style="list-style-type: none"> <li>• Public Health</li> <li>• Statistics</li> </ul>	9
Consulting	2
Total Credits	33
<p><b>The Master's Comprehensive Examination</b> The Master's Comprehensive Examination is a <u>written comprehensive examination</u> in the field of Epidemiology is based on the course content of PubH 203 Principles and Practice of Epidemiology, PubH 247 Design of Health Studies, and PubH 252 Advanced Epidemiology Methods and is administered by the faculty of the School of Public Health and Health Services.</p>	
<p><b>Professional Enhancement Requirement (One Day)</b>            Professional enhancement activities supplement the academic curriculum and help prepare students to participate actively in the professional community. They enhance practical knowledge and awareness of public health issues – either in general or in a student's specific area of study.</p> <p>Students can fulfill this requirement by attending workshops, seminars, or other relevant professional meetings, which are often held at SPHHS and in the metropolitan Washington, DC area. Examples of conference sponsors include the National Academy for State Health Policy, the Pan American Health Organization, the American Public Health Association, the American College of Healthcare Executives, the Area Health Education Center, the American College of Sports Medicine, and the National Athletic Trainer's Association. Opportunities for professional enhancement are regularly publicized via the SPHHS Listserv and through your department or advisor.</p> <p><i>Students must submit documentation of Professional Enhancement activities to the Epidemiology Program Director, which includes a <u>prior</u> approval, a description of the program agenda, and proof of attendance before applying for graduation.</i></p>	

THE GEORGE WASHINGTON UNIVERSITY MEDICAL CENTER WASHINGTON DC	<b>Columbian College of Arts and Sciences          and          School of Public Health and Health Services</b>  <b>Master of Science – Epidemiology</b>  <b>Program-at-a-Glance          2009-2010</b>			
<b>Required Core Courses (22 Total Credits)</b>				
<b>Required Public Health Core Courses (16 Credits)</b>		<b>Credits</b>	<b>Semester Offered</b>	<b>Grade</b>
PubH 201	Biological Concepts for Public Health	2	Summer, Fall, Spring	
PubH 202	Biostatistical Applications for Public Health	3	Fall, Spring	
PubH 203	Principles and Practice of Epidemiology <i>Basis for MS General Comprehensive</i>	3	Fall, Spring	
PubH 247	Design of Health Studies <i>Basis for MS General Comprehensive</i>	3	Fall, Spring	
PubH 252	Advanced Epidemiology Methods <i>Basis for MS General Comprehensive</i>	3	Summer, Spring	
PubH 209	Topics (1 credit courses) May be repeated for credit. Take two Topics courses.	2	Summer, Fall, Spring	
<b>Required Statistics Core Courses (6 Credits)</b>		<b>Credits</b>	<b>Semester Offered</b>	<b>Grade</b>
STAT 157	Introduction to Mathematical Statistics I	3	Fall, Spring	
STAT 158	Introduction to Mathematical Statistics II	3	Fall, Spring	
- OR -				
STAT 201*	Mathematical Statistics I	3	Fall, Spring	
STAT 202*	Mathematical Statistics II	3	Fall, Spring	
*Students interested in applying to the PhD degree program in Epidemiology may register in STAT 201 and 202, and not STAT 157 and 158. Advisor's approval is required before registering for STAT 201 and STAT 202.				
<b>Approved Elective Courses (9 Total Credits)</b>				
<b>Approved Public Health Elective Courses</b>		<b>Credits</b>	<b>Semester Offered</b>	<b>Grade</b>
PubH 204	Environmental and Occupational Health in a Sustainable World	2	Summer 1, Fall, Spring	
PubH 207	Social and Behavioral Science Approaches to Public Health	2	Summer 1, Fall, Spring	
PubH 221	Environmental and Occupational Epidemiology	3	Spring	
PubH 223	Toxicology: Applications for Public Health Policy	3	Fall	
PubH 224	Problem Solving in Environ & Occupational Hlth	3	Summer 10 week	
PubH 242	Clinical Epidemiology and Decision Analysis	2	Spring	
PubH 244	Cancer Epidemiology	2	Spring	
PubH 245	Infectious Disease Epidemiology	2	Spring	
PubH 246	Injury Epidemiology and Prevention	2	Spring	
PubH 248	Epidemiology Methods in Older Populations	2	Fall	
PubH 250	Epidemiology of HIV/AIDS	2	Fall	
PubH 260	Advanced Data Analysis for Public Health	2	Fall, Spring	
PubH 262	Introduction to Geographic Information Systems	1	Summer, Fall, Spring	
<b>Approved Statistics Elective Courses</b>		<b>Credits</b>	<b>Semester Offered</b>	<b>Grade</b>
STAT 118	Regression Analysis	3	Fall, Spring	
STAT 181	Applied Time Series Analysis	3	Spring	
STAT 187	Introduction to Sampling	3	Fall	
STAT 188	Nonparametric Statistical Inference	3	Fall, Even Years	
<b>Consulting (2 Credits)</b>				
PubH 209.58	Consulting Practicum	1	Summer, Fall, Spring	
PubH 258	Advanced Topics in Biostatistical Consulting	1	Spring	

