

Accelerated Baccalaureate in Mathematical Science to Master of Public Health in Epidemiology

Department of Mathematical Sciences
and
Division of Public Health

Learn to Identify Environmental Causes of Illness and Injury

Epidemiologists are critical to the identification of environmental and health hazards and to disease prevention. Epidemiology is one of the core disciplines of public health because its primary objectives are to identify the causes of disease in populations, provide the quantitative information needed to guide disease prevention and health promotion activities, and evaluate the health impacts of new policies, technologies, and products. Epidemiologists have a big role to play in an expanding array of society's critical issues – emerging new infections and global climate change, both the promise and threat of new biotechnologies, health risks from the proliferation of new products and services, and the repetitive stress and strain of globalized workplaces of the 21st century.

The strong preparation in mathematics and science received by Mathematics majors at UML provides an excellent platform for graduate study in epidemiology in the Division of Public Health. An accelerated master's program is now available to Mathematics majors in their junior and senior years. This program allows completion of a master's degree in as little as one additional year beyond the bachelor's degree.

How and when to apply

During the junior year, mathematics majors may apply for the accelerated master's program. Applicants must have a grade point average of 3.0 or better in mathematics courses and overall. Pre-requisite for the MPH is a semester of either biology or anatomy and physiology with a grade of C or better. Students may begin taking graduate courses during their junior year as long as course prerequisites are met.

Benefits of admission to the accelerated master's program

Applicants do not need to take the Graduate Record Examination (GRE), which is required for admission to other graduate programs.

Students may double count twelve graduate credits toward both the BS and MPH degrees allowing completion of the MPH in an accelerated time frame.

Career opportunities in epidemiology

Epidemiology master's graduates of the Department of Work Environment at UML have been very successful finding jobs in federal, state and local government health and environmental agencies, in consulting firms working with a wide range of industries, as well as in research at universities and hospitals. The occupational outlook for graduates in epidemiology and related fields is very good. Overall, there is a strong demand for public health professionals: 45% of the current workforce is expected to retire in the next five years. Demand for epidemiologists is expected to grow by 14% from 2006 to 2016.

Course of Study

A sample course of study with two semesters following the bachelors is shown below. Most students will require a third semester to complete the remaining 30 credits for the MPH. Depending on a student's interests and needs, other programs of study are possible.

Undergraduate Program

Before entering the accelerated master's program, Mathematics majors will complete a two-semester sequence of chemistry with accompanying laboratories. After entering the program, they will take the following courses from the College of Health Sciences:

35.101 Human Anatomy & Physiology I

35.102 Human Anatomy & Physiology II

35.103, 35.104, the laboratories which accompany these, and

31.313 Principles of Environmental Health or 31.201 Community Health and Environment
Environment or health-related elective

During the senior year, students will take three graduate Work Environment courses:

19.506 Environmental Health (fall)

19.575 Introduction to Biostatistics & Epidemiology (fall)

19.503 Toxicology & Health (spring)

University policy allows double counting of up to twelve credits to both the bachelors and masters degrees. Courses taken during the senior year that will count towards both the bachelor's and master's degrees: Fall semester - 19.506 Environmental Health and 19.575 Introduction to Biostatistics & Epidemiology and Spring semester - 92.591 Linear Modeling & Regression Methods and 19.503 Toxicology and Health.

The Master's Year

At least one additional year of full-time study is needed to fulfill the requirements for the Master of Public Health - Epidemiology specialization.

Fall semester

PUBH502 Health Policy Management

19.687 Quantitative Models in Health & Environment

19.689 Advanced Regression Modeling

19.600 Capstone

Elective

Spring semester

PUBH501 Social and Behavioral Determinants of Health

19.616 Exposure and Risk Assessment

19.682 Applied Epidemiology Methods

19.601 Capstone

Elective

**Course of Study for BA or BS in Mathematics – MPH Epidemiology
(with Graduate Certificate in Applied Statistics)**

Freshman Year					
Fall Semester			Spring Semester		
92.131	Calculus I	4	92.132	Calculus II	4
42.101	College Writing I	3	92.321	Discrete Structures I	3
___	General Education Elective (SS)	3	42.102	College Writing II	3
84.121	Chemistry I	3	84.122	Chemistry II	3
84.123	Chemistry I Lab	1	84.124	Chemistry II Lab	1
14			14		
Sophomore Year					
Fall Semester			Spring Semester		
92.231	Calculus III	4	92.23_	Differential Equations	3
92.221	Linear Algebra I	3	92.222	Linear Algebra II	3
	Math Lab I	1	42.229	Essay Writing	3
___	General Education Elective (SS)	3	___	General Education Elective (SS)	3
___	General Education Elective (AH)	3	___	Elective	3
___	Elective	3			
17			15		
Junior Year					
Fall Semester			Spring Semester		
92. ___	Analysis	3	92. ___	Analysis	3
92. ___	Probability/Statistics (92.385 or 92.386)	3	92.375	Senior Seminar I	1
___	General Education Elective (AH)	3	92.576	SAS Programming	3
35.101	Human Anat & Phys I (<i>Sci Tech</i>)	3	35.102	Human Anat & Phys II (<i>Sci & Tech</i>)	3
35.103	Human Anat & Phys Lab I (<i>Sci & Tech</i>)	1	35.104	Human Anat & Phys Lab II (<i>Sci & Tech</i>)	1
31.313	Principles of Environmental Health	3	___	General Education (AH)	3
			___	Elective – Environment or health-related	3
16			17		
Senior Year					
Fall Semester			Spring Semester		
92.593	Experimental Design	3	92.591	Linear Modeling and Regression Methods	3
92.475	Senior Seminar II	3	19.503	Toxicology and Health	3
19.506	Intro to Environmental Health	3	___	General Elective (AH)	3
19.575	Intro Biostatistics & Epidemiology	3	___	Science Elective	3
___	Elective	3	___	Elective	3
15			15		
Bachelors Degree in Mathematics, 120 credits (12 applied toward MPH in Epidemiology)					
Graduate Year (MPH in EPIDEMIOLOGY)					
Pubh502	Health Policy Management	3	Pubh501	Social and Behavioral Determinants of Health	3
19.687	Quantitative Models for Health & Environment	3	19.616	Exposure and Risk Assessments	3
19.689	Advanced Regression Modeling	3	19.682	Applied Epidemiologic Methods	3
19.600	Capstone	3	19.601	Capstone	3
___	Elective	3	___	Elective	3
15			15		
DWE – 42 Credits – MPH Degree Awarded					

