

Master of Science (MS) in Epidemiology

CURRICULUM

Minimum Requirements

36 Total Credit Hours including
6 credit hours in Biostatistics
3 to 6 credit hours in another Public Health discipline
6 credit hours of thesis research

Required Coursework

Semester	Course Title	Credit Hours
Fall I		
	PHEP 602 Epidemiologic Methods	3
	PHEP 619 Biology of Disease in Populations	3
	*PHST xxx	3
Spring I		
	PHEP 618 Epidemiologic Methods II	3
	PHEP 604 Epidemiology of Acute and Infectious Diseases	3
	*PHST xxx	3
Fall II		
	PHEP 607 Epidemiology of Cancer	3
	PHEP 609 Epidemiology of Chronic Diseases	3
	**PHxx elective	3
Spring II		
	**PHxx elective OR	
	PHEP 650 Advanced Topics in Epidemiology	3
	PHEP 666 Thesis Research in Epidemiology	1-6

* To be determined by negotiation with Dept. Bioinformatics/Biostatistics

** To be selected from course offerings of another SPHIS department.

*List of Acceptable Biostatistics (PHST) Courses

PHST 624 Clinical Trials I
PHST 650 Advanced Topics in Biostatistics
PHST 680 Biostatistical Methods I
PHST 681 Biostatistical Methods II

PHST 661 Probability
PHST 662 Mathematical Statistics
PHST 683 Survival Analysis
PHST 684 Categorical Data Analysis
PHST 682 Multivariate Analysis

**List of Acceptable Elective Courses in Public Health Sciences (PHxx)

PHEP 606 Genetic and Molecular Epidemiology
PHEP 611 Nutritional Epidemiology
PHEP 612 Epidemiology and Bioterrorism
PHEP 613 Epidemiology of Aging
PHEP 615 Epidemiology of Maternal/Child Health
PHCI 671 Preventive Medicine I
PHCI 672 Preventive Medicine II
PHCI 605 Survey Research Methods
PHCI 611 Introduction to Clinical Epidemiology
PHEH 650 Advanced Topics in Environmental and Occupational Health
PHKC 650 Advanced Topics in Health Knowledge and Cognitive Sciences
PHMS 650 Advanced Topics in Health Management and Systems Science

Additional courses may be added pending their development by other departments in the School of Public Health and Information Sciences.

Program of Study

Upon admission to the MS program, each student will be assigned a faculty advisor who will work with the student to develop a Program of Study that will identify required and optional coursework.

Thesis Requirement

The MS thesis will be an original, professional quality, potentially publishable paper on one or more of the following:

- a critical review of the contemporary epidemiologic literature on a specific disease, risk factor, or health related condition
- a meta-analysis of results from several epidemiologic studies of a specific disease
- a research report on analysis of collected data
- an evaluation of epidemiologic statistical methodology

In summary, the MS in Epidemiology is explicitly designed to prepare students for a career in research, not public health practice.

Competencies

To graduate, students in the MS program in Epidemiology must demonstrate the following competencies:

1. Mastery of the principles of epidemiologic, observational study design, including:
 - The merits and limitations of cross-sectional, retrospective and prospective designs
 - Methods of disease surveillance and case ascertainment
 - Methods of population-based sampling
 - Sample size and statistical power calculation
 - Issues in the measurement of exposure and disease transmission
 - Identification and correct interpretation of potential biases in study design
2. Knowledge of the socioeconomic and geographic distribution, risk factors, and etiology of major acute, infectious and chronic morbidity and mortality.
3. Mastery of basic methods of analysis of epidemiologic data, including:
 - Measures of disease frequency, prevalence and incidence
 - Methods for adjusting rates for age, gender, etc.
 - Measures of association, odds ratio, relative risk
 - Control of confounding and effect modification through stratification and statistical control
 - Modeling in multiple logistic regression
 - Principles of survival analysis
 - Correct interpretation of results with regard to issues of error, bias and criteria for causality