EPIDEMIOLOGY (MS)

Master of Science in Epidemiology
Unit: School of Public Health and Information Sciences (https://louisville.edu/sphis/) (GH)
Department: Epidemiology and Population Health (https://louisville.edu/sphis/departments/eph/)
Program Website (https://louisville.edu/sphis/departments/eph/academics/)
Academic Plan Code(s): EPIDMS_O

Program Information

This program is completed 100% online *(https://louisville.edu/online/programs/masters/online-master-of-science-in-epidemiology/).*

The Master of Science (MS) in Epidemiology program is designed as a terminal degree to prepare students for a career as an epidemiologist, and also prepares students for the PhD program in Public Health Sciences with a specialization in Epidemiology. The MS in Epidemiology is offered by the Department of Epidemiology and Population Health.

Competencies

To graduate, students in the MS program in epidemiology must maintain a GPA of 3.0 or higher and be able to demonstrate the following competencies:

- Explain the evolving paradigms of epidemiologic theory and study design and their impact on public health and medical sciences
- Summarize scientific literature on an epidemiologic problem
- Formulate epidemiologic research questions and testable hypotheses
- Apply computer software for data management and analysis
- Design and apply methods for data collection and management for epidemiologic research
- Apply advanced quantitative methods to analyze an epidemiologic problem
- Integrate cross-disciplinary knowledge from molecular to population levels to make appropriate causal inferences
- Communicate in written and oral presentations epidemiologic concepts and findings to diverse audiences

In greater detail, an MS student must specifically demonstrate:

- 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
- Knowledge of the socioeconomic and geographic distribution, risk factors, and etiology of major acute, infectious and chronic morbidity and mortality.
- 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

These competencies are demonstrated through the successful completion of the coursework.

Curriculum

The program is designed as a fifteen month (4 semester) program of coursework.

Faculty Advisor

Upon admission to the MS program, each student is assigned a faculty advisor by the department chair or program director. Students and/or advisors who wish to change their assigned relationship must make a written request to the department chair or program director.

Admission Requirements

Students with a prior baccalaureate degree, or an advanced degree in an appropriate field of study, from a regionally accredited university or college are eligible for the MS program in Epidemiology.

Successful completion of college level algebra (or higher level math) with a grade of B or higher is required, evidenced via college transcripts. High School AP credit does not satisfy this requirement. Previous coursework in statistics is required, and biological or health sciences (for example, biology, biochemistry, anatomy, physiology, and/or microbiology) is strongly recommended. Applicants who are judged to not have sufficient prior coursework or experience in these areas may be required to take additional coursework.

The following are required for admission:

- Formal application through the Graduate School (https://louisville.edu/graduate/futurestudents/apply-materials/application/) with transcripts and curriculum vitae,
- A one-page personal statement describing the applicant's background and interest in epidemiology,
- Two letters of recommendation,
- Undergraduate GPA at least 3.0 on 4.0 scale,
- Official transcripts of all degrees
  - International applicants: Foreign credential evaluation of all degrees from non-U.S. institutions.
- International students for whom English is not their primary language must show English language proficiency by one of the following:
  - Demonstration of a degree awarded from an institution with instruction primarily in English, as formally documented by an appropriate institutional official
  - Duolingo test score of 105 or higher
  - IELTS test score of 6.5 or higher
  - TOEFL examination score of 213 (computer based test) or 79 (internet based test)

Application Deadline

Fall semester - July 1

Spring semester - Applications are not accepted.

Summer semester – Applications are not accepted.

Program Requirements

Degree requirements include required coursework in epidemiology, including epidemiologic methods, theory, and substantive knowledge, as outlined in the course plan.

Academic Standing

To maintain good academic standing in the MS in Epidemiology program, students must maintain a cumulative GPA of 3.0 or higher for all coursework in the program. A student must be in good academic standing in order to receive the degree.

Any MS in Epidemiology student with a program cumulative GPA below 3.0 will be placed in probationary status. Any student who remains in probationary status for two consecutive terms may be considered for dismissal from the program.

Coursework

30 total credit hours of required coursework

Semester 1		Hours
PHEP 612	Statistics for Epidemiologic Research and Practice	3
PHEP 618	Epidemiologic Methods I	4
	Hours	**7**
Semester 2		
PHEP 619	Biology of Disease in Populations	3
PHEP 627	Survey Research Methods	3
PHEP 628	Computational Epidemiology with SAS	3
	Hours	**9**
Semester 3		
PHEP 630	Study Coordination Skills for Epidemiologic Research	3
PHEP 623	Theoretical Foundations of Epidemiology	3
	Hours	**6**
Semester 4		
PHEP 629	Computational Epidemiology with R	3
PHEP 614	Introduction to Clinical Epidemiology	2
PHEP 620	Environmental and Occupational Epidemiology	3
	Hours	**8**
	Minimum Total Hours	**30**

Successful completion of both PHEP 612 and PHEP 618 is required in order to enroll in the remaining courses. The remaining courses (listed in semesters 2, 3, and 4) can be taken in any order.