In greater detail, an MS student must specifically demonstrate:

- 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.

### 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.

Previous coursework in mathematics and/or 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
- 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.

### Program Information

This program is completed entirely online (https://louisville.edu/online/programs/masters/online-master-of-science-in-epidemiology/) in an asynchronous format.

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:
Spring semester - December 1

Summer semester – April 1

**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**

31 total credit hours of required coursework

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Hours</th>
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<tbody>
<tr>
<td>PHEP 621</td>
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<tr>
<td>PHEP 618</td>
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<td>3</td>
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<tr>
<td><strong>Hours</strong></td>
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</table>

**Minimum Total Hours** 31

Successful completion of both PHEP 621 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.