CLINICAL INVESTIGATION SCIENCES (MSC)

Master of Science in Clinical Investigation Sciences

Unit: Public Health and Information Sciences (http://louisville.edu/sphis/) (GH)
Department: Clinical Investigation Sciences (http://louisville.edu/sphis/academics/clinical-investigation-sciences/)
Program Webpage (http://louisville.edu/sphis/academics/clinical-investigation-sciences/)
Academic Plan Code(s): CISMSC

Program Information

The MSc in Clinical Investigation Sciences degree program provides physicians, dentists, nurses and other health professionals an opportunity to acquire the clinical research skills necessary for a career in an academic health center.

The MSc in Clinical Investigation Sciences curriculum integrates biostatistical and epidemiologic methods in a problem-based learning format with additional instruction in several other biomedical and public health topics. Students pursuing the master’s degree take didactic courses while they engage in mentored and independent research that culminates in the preparation of a professional paper.

Competencies

The successful student is able to:

- Access and critique scientific literature.
- Address and discuss methods and issues of clinical epidemiology.
- Identify important clinical research questions and state as testable hypotheses.
- Develop collaborative clinical research studies in accordance with appropriate epidemiologic and biostatistical methodologies.
- Disseminate study results to professional and lay audiences through oral and written communication.
- Analyze ethical and legal issues in performing and disseminating clinical research.

It is expected that prior to graduation, students in the program have demonstrated these competencies by completing the curriculum, participating in a collaborative research project, and successfully writing and defending the professional paper.

Admission Requirements

Applicants must have completed a baccalaureate degree from an accredited institution with a minimum GPA of 3.0 on a 4.0 scale. Applicants that have had research experience (e.g., research coordinator) or have completed a professional doctoral degree (e.g., DMD, DO, MD) are preferred.

Application requirements are submitted to the Graduate School and include:

- Formal graduate application (http://louisville.edu/graduate/futurestudents/apply-materials/application/)
- Curriculum vitae
- Official transcripts of all post-secondary coursework
- A minimum of two letters of recommendation
- Official scores on the Graduate Record Examination (GRE) General Test. This requirement may be waived for applicants who have any of the following:
  - A graduate degree from a U.S. institution
  - ECFMG certification
  - Passed steps 1 and 2 of the USMLE (United States Medical Licensing Examination)
  - Four or more years of clinical research related experience in the U.S. or Canada
- International students for whom English is not their primary language must show English language proficiency by one of the following:
  - TOEFL examination with a minimum score of 90 (after conversion for test type)
  - IELTS test score of 6.5 or higher
  - ECFMG (Educational Commission for Foreign Medical Graduates) certification
  - Successfully passing the exit examination for the advanced level of an Intensive English as a Second Language Program
  - Demonstration of a degree awarded from a institution with instruction primarily in English, as formally documented by an appropriate institutional official

For specific information about the degree program or the application process, students should contact Dr. Paul McKinney (mckinney@louisville.edu) or Winton Reynolds (winton.reynolds@louisville.edu), Program Director, (502)852-1992.

Application Deadline

Fall semester - Completed applications and all required application materials are due by August 1.
International students are encouraged to apply no later than 120 days prior to the start of the fall semester.

Spring semester – Accepted with Program Director approval.

Summer semester – Applications are not accepted.

Curriculum

The typical progression through the MSc curriculum is:

- Develop program of study
- Take coursework
- Select research project and begin work
- Complete research project and prepare professional paper
- Present and defend research project

Faculty Advisor

The program director serves as faculty advisor for each student until the student begins his or her research for the professional paper, at which time the student selects a Principle Advisor for his or her research with the approval of the program director. The Principle Advisor may be any member of the School’s faculty, or (with approval of the program director)
a mentor in the student’s laboratory or employment affiliation that is willing to assume the function of faculty advisor.

**Program of Study**

Upon matriculation in the program, each student meets with the program coordinator and develops a program of study based on the student’s time availability (e.g., typical two-year program or extended three-year program). The program of study may be modified as the student’s needs change or course availability is altered.

Awarding a degree from an accredited school of public health requires successful completion of coursework that provides instruction in foundational public health knowledge. This instruction is delivered through PHPH 523 Public Health in the United States.

Students with a prior degree from a CEPH accredited school or program of public health may be relieved of this requirement, per approval of the Associate Dean for Academic Affairs. In the absence of a variance, PHPH 523 satisfies the requirement.

**Program Requirements**

31 total credit hours of required coursework

- 22 credit hours of required coursework
- 6 credit hours of elective coursework
- 3 credit hours of mentored research

The following includes all required courses organized by the semester in which they are offered. Some courses are offered in alternating years (see below).

**Course Offerings by Semester**

### Fall

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required Coursework</td>
<td></td>
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<tr>
<td>PHPH 523</td>
<td>Public Health in the United States</td>
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<tr>
<td>PHST 500</td>
<td>Introduction to Biostatistics for Health Sciences I</td>
<td>3</td>
</tr>
<tr>
<td>PHEP 610</td>
<td>New Drug &amp; Device Development</td>
<td>2</td>
</tr>
<tr>
<td>PHST 624</td>
<td>Clinical Trials I: Planning and Design</td>
<td>2</td>
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<tr>
<td>PHST 631</td>
<td>Data Collection for Clinical Research</td>
<td>3</td>
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<td>Elective</td>
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### Spring

<table>
<thead>
<tr>
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<th>Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>Required Coursework</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHST 501</td>
<td>Introduction to Biostatistics for Health Sciences II</td>
<td>3</td>
</tr>
<tr>
<td>PHST 625</td>
<td>Clinical Trials II</td>
<td>2</td>
</tr>
<tr>
<td>PHPH 632</td>
<td>Ethical Conduct of Health Care Research</td>
<td>2</td>
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<tr>
<td>PHEP 614</td>
<td>Introduction to Clinical Epidemiology</td>
<td>2</td>
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<td>PHPH 601</td>
<td>Evaluating Health Care Literature</td>
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<tr>
<td>PHPH 699</td>
<td>Mentored Research</td>
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<tr>
<td>Elective</td>
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<tr>
<td><strong>Total</strong></td>
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<td><strong>16</strong></td>
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**Minimum Total Hours**

- 31

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1. PHPH 523 is required of students who do not have a public health degree from a CEPH accredited School of Public Health.
2. PHPH 610 is offered every other fall semester on even numbered years (2022, 2024, 2026, etc.)
3. PHST 631 is offered every other fall semester on odd numbered years (2021, 2023, 2025, etc.)