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, Graduate Admissions and include:

- Formal application
- Curriculum vitae
- Personal statement, a one-page essay that discusses the student’s background and his or her long-term goals in clinical research
- Application fee
- A minimum of two letters of recommendation
- Official transcripts of all post-secondary coursework
- Official scores on the Graduate Record Examination (GRE) General Test. This requirement may be waived for applicants that have a doctoral degree or who have four or more years of clinical research related experience.

For specific information about the degree program or the application process, students should contact Dr. Paul McKinney (mckinney@louisville.edu), Program Director, (502)852-3019, or Winton Reynolds (winton.reynolds@louisville.edu), Program Coordinator, (502)852-1992.

The application for the MSc is found at louisville.edu/graduate/apply.

Curriculum

The typical progression through the MSc curriculum is:

- Develop program of study
- Take coursework
- Select research project and begin work
- Do 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.

This requirement may be determined to have been met prior to matriculation by approval of a variance request submitted by the program director to the academic dean. The request for a variance in this requirement must be justified by one of: previous degrees received, such as an MPH or DrPH; previous equivalent coursework successfully completed; or extensive experience in the public health workforce. In the absence of a variance, PHPH 523 satisfies the requirement.

Program Requirements

30 total credit hours of required coursework
Clinical Investigation Sciences (MSc)

- 21 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

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fall</strong></td>
<td><strong>Required Coursework</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHPH 523</td>
<td>Public Health in the United States ¹</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>PHST 500</td>
<td>Introduction to Biostatistics for Health Sciences I</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>PHPH 610</td>
<td>New Drug &amp; Device Development ²</td>
<td>2</td>
<td></td>
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<tr>
<td>PHST 624</td>
<td>Clinical Trials I: Planning and Design</td>
<td>2</td>
<td></td>
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<tr>
<td>PHST 631</td>
<td>Data Collection for Clinical Research ³</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Elective</td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total Hours</strong></td>
<td></td>
<td><strong>14</strong></td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td><strong>Required Coursework</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHST 501</td>
<td>Introduction to Biostatistics for Health Sciences II</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>PHST 625</td>
<td>Clinical Trials II</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>PHPH 632</td>
<td>Ethical Conduct of Health Care Research ⁴</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>PHEP 614</td>
<td>Introduction to Clinical Epidemiology ⁵</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>PHPH 601</td>
<td>Evaluating Health Care Literature ⁵</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>PHPH 699</td>
<td>Mentored Research</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Elective</td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total Hours</strong></td>
<td></td>
<td><strong>16</strong></td>
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<tr>
<td></td>
<td><strong>Minimum Total Hours</strong></td>
<td></td>
<td><strong>30</strong></td>
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</table>

¹ PHPH 523 is required of students who do not have a broad exposure to public health through experience or coursework. It is offered only in the Fall. Any student who waives out of the course must replace the two-semester hours with elective coursework.

² PHPH 610 is offered every other fall semester on even numbered years (2020, 2022, 2024, etc.)

³ PHST 631 is offered every other fall semester on odd numbered years (2021, 2023, 2025, etc.)

⁴ PHPH 632 is offered every other spring semester on even numbered years (2020, 2022, 2024, etc.).

⁵ PHEP 614 and PHPH 601 are offered every other spring semester on odd numbered years (2021, 2023, 2025, etc.).

### Elective Coursework

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 677</td>
<td>Graduate Writing in the Disciplines ⁶</td>
<td>3</td>
</tr>
<tr>
<td>SOC 618</td>
<td>Qualitative Research Methods ⁵</td>
<td>3</td>
</tr>
</tbody>
</table>

⁴ Specific courses vary.

⁵ Offered fall semesters

⁶ Offered spring semesters

### Professional Paper

A professional paper, based on original research conducted by the student, is required of a candidate for the degree of Master of Science in Clinical Investigation Sciences. It is to be an original work of professional quality and a scholarly achievement that demonstrates the student’s thorough understanding of research techniques in clinical research and the ability to conduct independent research.

#### Professional Paper Committee

The professional paper is read by a reading committee, chaired by the student’s faculty advisor, and appointed by the dean of the school upon the recommendation of the program director. This committee consists of three members and must include one representative of the School of Public Health and Information Sciences. The professional paper must be approved by the committee and the program director.

#### Professional Paper Proposal

The proposal for the professional paper is to be developed in written form and presented to the committee for approval.

#### Professional Paper Approval

The professional paper is to be submitted in completed form to the Principal Advisor of the committee at least fourteen days before the end of the term in which the candidate expects to be graduated, and the candidate is not eligible for the final oral examination until the professional paper has been accepted by the committee.

The committee schedules an oral examination of the candidate during which the student presents his or her professional paper and is asked to defend it and the supporting research. The professional paper is approved by a majority vote of the committee and by the program director.