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): CISCMSC

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
- 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
  - International students' foreign transcripts must submitted for foreign credential evaluation. This requirement may be waived for foreign students with ECFMG certification.
- 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 79 (after conversion for test type)
  - IELTS test score of 6.5 or higher
  - Duolingo test score of 105 or higher
  - Demonstration of a degree awarded from an 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), Program Director, (502)852-3019, or Bryan Mathis (bryan.mathis@louisville.edu), Program Coordinator Senior, (502)852-6263.

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.

Academic Standing

To maintain good academic standing in the MSc in Clinical Investigation Sciences 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 MSc in Clinical Investigation Sciences 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.

Program Requirements

31 total credit hours of required coursework

- 22 credit hours of required coursework
- six (6) credit hours of elective coursework
- three (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		Hours
Required Coursework		
PHPH 523	Public Health in the United States [1]	3
PHST 500	Introduction to Biostatistics for Health Sciences I	3
PHST 624	Clinical Trials I: Planning and Design	2
PHPH 632	Ethical Conduct of Health Care Research	2
PHPH 631	Clinical Research Management [3]	2
Elective		3
	Hours	**15**
Spring		
PHST 501	Introduction to Biostatistics for Health Sciences II	3
PHST 625	Clinical Trials II	2
PHEP 614	Introduction to Clinical Epidemiology [5]	2
PHPH 601	Evaluating Health Care Literature [5]	1
PHPH 610	New Drug & Device Development	2
PHPH 699	Mentored Research	3
Elective		3
	Hours	**16**
	Minimum Total Hours	**31**

[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 spring semester on even numbered years (2022, 2024, 2026, etc.)

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

[4] PHPH 632 is offered every other fall semester on even numbered years (2022, 2024, 2026, etc.).

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

Elective Coursework

Code	Title	Hours
Approved Electives		
Six (6) credit hours of electives from the following (other courses on approval of program advisor)		
Advanced Coursework in Biostatistics (PHST-XXX) [4]		2-3
Advanced Coursework in Epidemiology (PHEP-XXX) [4]		2-3
PHPB 501	Introduction to Public Health Behavior [5]	3
LEAD 676	Instructional Strategies in Health Professions Education	3
LEAD 685	Evidence Based Practice in Health Professions Education	3
PHMS 684	Project Management for Population Health [6]	3
PHMS 645	Health Services Research Methods I [6]	3
ENGL 677	Graduate Writing in the Disciplines [6]	3
SOC 618	Qualitative Research Methods [6]	3

[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.