Clinical Investigation, MS

Requirements

The Master of Science program in clinical investigation requires 37 s.h. of graduate credit. In addition to completing the program’s required coursework, students must write a thesis in the form of a manuscript, or a grant proposal for a National Institutes of Health (NIH) career award or its equivalent, with oral defense. Graduate students must maintain a cumulative grade-point average of at least 3.00. Those who receive a grade of C in 7 s.h. of coursework may be dismissed from the program.

The program, which is offered in collaboration with the university’s Institute for Clinical and Translational Science, is designed for clinicians interested in pursuing careers in clinical research. It includes in-depth training in biostatistics, epidemiology, research ethics, and academic survival skills as well as didactic training applicable to clinical research careers. Graduates of the program are able to critically evaluate clinical literature, write competitive grant proposals, design and conduct clinical research projects, work effectively with other researchers and support staff, and disseminate research results through manuscripts and presentations.

Prerequisites

The MS program requires at least 6 s.h. of prerequisite coursework in the disciplines of pathology, physiology, and/or pharmacology. Students accepted into the degree program who have not completed at least 6 s.h. from those disciplines may meet the requirement while they are enrolled.

The MS with a major in clinical investigation requires the following coursework.

Core Courses

Students must take CPH:7270 Principles of Scholarly Integrity: Public Health during their first year in the fall semester (enroll for 0 s.h.) and in the spring semester (enroll for 1 s.h.). They must retake CPH:7270 if they completed the course more than four years ago or if they have changed degree programs.

<table>
<thead>
<tr>
<th>Course #</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>EPID:4400</td>
<td>Epidemiology I: Principles</td>
<td>3</td>
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<tr>
<td>EPID:5241</td>
<td>Statistical Methods in Epidemiology</td>
<td>4</td>
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<tr>
<td>EPID:5500</td>
<td>Introduction to Clinical Epidemiology</td>
<td>3</td>
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<tr>
<td>EPID:5610</td>
<td>Intermediate Epidemiology Data Analysis with SAS and R</td>
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<tr>
<td>EPID:6150</td>
<td>Writing for Medical Journals</td>
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<tr>
<td>EPID:6400</td>
<td>Epidemiology II: Advanced Methods</td>
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<tr>
<td>EPID:6950</td>
<td>Clinical Research Ethics</td>
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<tr>
<td>BIOS:4120</td>
<td>Introduction to Biostatistics</td>
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<tr>
<td>CPH:6100</td>
<td>Essentials of Public Health</td>
<td>2</td>
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Capstone Requirement

While a student does not take a final examination of courses, the evaluation of the student for graduation is based upon a positive review of a mentored K or R grant or a mentored publishable research paper. The grant or paper is completed in the second year of the program and based on the area of focus. The capstone is a mentored activity that requires approval by a clinical mentor and a Department of Epidemiology primary faculty member. Successful completion of the course is denoted with a satisfactory (S) grade. The complete grant or paper will be due no later than one month prior to graduation for review.

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<tr>
<th>Course #</th>
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<tbody>
<tr>
<td>EPID:6000</td>
<td>Independent Study in Epidemiology</td>
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Electives

Students must earn a minimum of 9 s.h. in elective coursework, including at least 6 s.h. in a research interest area. The following elective courses are recommended.

<table>
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<tr>
<td>EPID:5214</td>
<td>Meta-Analysis of Epidemiologic Studies</td>
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<td>EPID:6100</td>
<td>Writing a Grant Proposal</td>
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<td>EPID:6900</td>
<td>Design of Intervention and Clinical Trials</td>
<td>3</td>
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<tr>
<td>EPID:6910</td>
<td>Pharmacoepidemiology and Comparative Effectiveness Research</td>
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</tbody>
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Research Interest Areas

Community Studies

<table>
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<tr>
<th>Course #</th>
<th>Title</th>
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<tbody>
<tr>
<td>CBH:5235</td>
<td>Community-Based Participatory Research</td>
<td>3</td>
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<tr>
<td>CBH:5305</td>
<td>Evaluation: Approaches and Applications</td>
<td>3</td>
</tr>
<tr>
<td>CBH:6205</td>
<td>Designing and Implementing Interventions</td>
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<tr>
<td>EPLS:5165</td>
<td>Introduction to Program and Project Evaluation</td>
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Epidemiology

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<tr>
<th>Course #</th>
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<tbody>
<tr>
<td>EPID:5560</td>
<td>Biomarkers in Epidemiology</td>
<td>3</td>
</tr>
<tr>
<td>EPID:5570</td>
<td>Zoonotic Diseases</td>
<td>3</td>
</tr>
<tr>
<td>EPID:6250</td>
<td>Genetics and Epidemiology</td>
<td>3</td>
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<tr>
<td>EPID:6510</td>
<td>Injury Epidemiology</td>
<td>3</td>
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<tr>
<td>EPID:6550</td>
<td>Epidemiology of Infectious Diseases</td>
<td>3</td>
</tr>
<tr>
<td>EPID:6560</td>
<td>Hospital Epidemiology</td>
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<tr>
<td>EPID:6600</td>
<td>Epidemiology of Chronic Diseases</td>
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### Health Services Epidemiology

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<td>EPID:6360</td>
<td>Nutrition Intervention in Clinical Trials Research</td>
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<tr>
<td>EPID:6655</td>
<td>Causal Inference</td>
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<tr>
<td>EPID:6900</td>
<td>Design of Intervention and Clinical Trials</td>
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<tr>
<td>EPID:6910</td>
<td>Pharmacoepidemiology and Comparative Effectiveness Research</td>
<td>3</td>
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<tr>
<td>EPID:6920</td>
<td>Applied Administrative Data Analysis</td>
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<tr>
<td>BIOS:6610</td>
<td>Statistical Methods in Clinical Trials</td>
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<tr>
<td>BIOS:7600</td>
<td>Advanced Biostatistics Seminar</td>
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<tr>
<td>CBH:6205</td>
<td>Designing and Implementing Interventions</td>
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<tr>
<td>PCOL:5136</td>
<td>Pharmacogenetics and Pharmacogenomics</td>
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### Informatics

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<td>EPID:5200</td>
<td>Principles of Public Health Informatics</td>
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<td>EPID:5600</td>
<td>Introduction to Epidemiology Data Management and Analysis</td>
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<td>HMP:5315</td>
<td>Health Information Systems</td>
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### Nutrition Science

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<tr>
<td>EPID:6330</td>
<td>Global Nutrition Policy</td>
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<tr>
<td>EPID:6350</td>
<td>Nutritional Epidemiology</td>
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<tr>
<td>EPID:6360</td>
<td>Nutrition Intervention in Clinical Trials Research</td>
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<tr>
<td>EPID:6370</td>
<td>Nutrition Intervention in Research Lab</td>
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### Outcomes and Health Services Research

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<td>HMP:5410</td>
<td>Health Economics I</td>
<td>3</td>
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<td>HMP:7550</td>
<td>Cost Effectiveness and Decision Analysis</td>
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<tr>
<td>HMP:7960</td>
<td>Analytic Issues in Health Services Research I</td>
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<tr>
<td>HMP:7965</td>
<td>Analytic Issues in Health Services Research II</td>
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### Pharmacy Science

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<tr>
<td>PHAR:5310</td>
<td>Health Services Research Seminar</td>
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<td>PHAR:5350</td>
<td>Introduction to Research Methods</td>
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<td>PHAR:6305</td>
<td>Foundation Literature in Health Services Research</td>
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### Statistical Methods

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<td>BIOS:6210</td>
<td>Applied Survival Analysis</td>
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<tr>
<td>BIOS:6310</td>
<td>Introductory Longitudinal Data Analysis</td>
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### Translational Biomedicine

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<tr>
<th>Course #</th>
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<tr>
<td>TBM:5001</td>
<td>Introduction to Translational Biomedicine</td>
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