GRADUATE TRAINING PROGRAMS IN CLINICAL INVESTIGATION, MHS

The MHS degree is a one-year training program for physicians or other health care professionals with an advanced degree who desire rigorous training in patient-oriented research. The MHS degree may also be appropriate for junior Johns Hopkins Medical Institutions (JHMI) faculty or post-doctoral clinical fellows who cannot accommodate the three-year PhD commitment because of departmental constraints or other issues. It is also appropriate for professionals who do not have an academic appointment within JHMI, and for medical students who desire intensive training in clinical investigation.

All students are assigned an academic adviser from among the Advisory Council (https://www.jhsph.edu/academics/graduate-training-programs-in-clinical-investigation/advisory-council/), who will provide academic and career advice and monitor the student's academic performance. Assignments are made during the 1st term of the didactic year, determined on the basis of perceived mutual interests, availability, and sometimes professional background. Each student and assigned adviser are expected to have a face-to-face introductory meeting by the end of 2nd term in the didactic year. The adviser's role is complete once the student has passed the comprehensive examination at the end of the didactic year, and hence satisfied the degree requirements.

Requirements research is not required.

Requirements for the MHS Degree:

Course location and modality is found on the JHSPH website (https://www.jhsph.edu/courses/).

The MHS degree is a non-research requiring degree which is awarded to students who specifically apply for this non-research track and fulfill the following requirements:

- 70 credit hours of course work
- MHS capstone experience
- comprehensive examination

MHS students must commit to a one year, full-time pursuit of completing the coursework as rapidly as possible so the benefits begin to accrue in clinical research activities. In some extenuating circumstances exceptions may be considered at the discretion of the GTPCI Admissions Committee and Advisory Council prior to admission.

All MHS students are assigned an academic adviser in the 1st term whose role is to provide general academic and career advice and monitor the student's academic performance.

MHS Capstone Experience

The project completed in the "Principles of Grant Writing" course serves as the MHS Capstone project. MHS students will consider the principles of successful clinical research strategies and the requirements of funding agencies. Each student will identify a defined research project, together with a suitable team of mentors and collaborators. With mutual review and criticism, each student will develop a written research proposal in the format of a grant application which will integrate the scientific principles of the GTPCI curriculum. MHS students must satisfactorily complete this class prior to graduation.

GTPCI thesis-degree students may not transfer into the MHS degree, nor receive an MHS degree even though they may have satisfied the nominal requirements.

MHS students who have successfully completed a minimum of 16 credits consecutively, through 4th terms, may formally request a transfer into the PhD degree with the approval of their academic adviser. Requests should be made to the Advisory Council, who will either grant the transfer or determine that the application must be reviewed and approved by the GTPCI Curriculum and Academic Standards Committee.

When the coursework requirements are completed satisfactorily and the comprehensive exam has been passed, the program will recommend approval of the MHS degree.

Comprehensive Examination

Taken after successfully completing the core coursework. It is a take-home exam distributed at the end of 4th term, in which students have 7 consecutive days for completion. One re-take of the exam is allowable with 3 days/72 hours for completion. If the exam is not passed on the second attempt, the student will be removed from the program.

Required Coursework

Completion of Introduction to Online Learning (https://courseplus.jhsph.edu/core/index.cfm/go/course.home/cid/90/) is required prior to beginning 1st term.

According to the requirements of the Council on Education for Public Health (CEPH) (https://e-catalogue.jhu.edu/public-health/ceph-requirements/), all JHSPH degree students must be grounded in foundational public health knowledge. The courses below meet these requirements: 552.601, 552.603, 552.607, 552.608, 552.609, 552.610, 552.611, 552.612.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>PH.390.750</td>
<td>Introduction to Clinical Research (Optional in Summer prior to matriculation)</td>
<td>2</td>
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<tr>
<td>PH.552.601</td>
<td>Foundational Principles of Public Health</td>
<td>0.5</td>
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<tr>
<td>PH.552.603</td>
<td>The Role of Qualitative Methods and Science in Describing and Assessing a Population's Health</td>
<td>0.5</td>
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<tr>
<td>PH.552.607</td>
<td>Essentials of Environmental Health</td>
<td>0.5</td>
</tr>
<tr>
<td>PH.552.608</td>
<td>Biologic, Genetic and Infectious Bases of Human Disease</td>
<td>0.5</td>
</tr>
<tr>
<td>PH.552.609</td>
<td>Psychological and Behavioral Factors That Affect A Population's Health</td>
<td>0.5</td>
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<tr>
<td>PH.552.610</td>
<td>The Social Determinants of Health</td>
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<tr>
<td>PH.552.611</td>
<td>Globalization and Population Health</td>
<td>0.5</td>
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<tr>
<td>PH.552.612</td>
<td>Essentials of One Health</td>
<td>0.5</td>
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<tr>
<td>PH.550.600</td>
<td>Living Science Ethics - Responsible Conduct of Research</td>
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<tr>
<td>PH.550.860</td>
<td>Academic &amp; Research Ethics at JHSPH</td>
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<tr>
<td>PH.390.673</td>
<td>Ethical and Regulatory Issues in Clinical Research (or 306.665)</td>
<td>3</td>
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<tr>
<td>PH.390.631</td>
<td>Principles of Drug Development</td>
<td>2</td>
</tr>
<tr>
<td>PH.390.751</td>
<td>Seminars in Clinical Investigation</td>
<td>2</td>
</tr>
<tr>
<td>PH.390.801</td>
<td>Professional Goals and Objectives</td>
<td>1</td>
</tr>
<tr>
<td>PH.390.710</td>
<td>Biomedical Writing I</td>
<td>2</td>
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2  Graduate Training Programs in Clinical Investigation, MHS

PH.390.711 Biomedical Writing II 2
PH.390.721 Principles of Grant Writing I 2
PH.390.722 Principles of Grant Writing II 4
PH.390.703 Presentation Skills 1
PH.140.621 Statistical Methods in Public Health I (or 140.651) 4
PH.140.622 Statistical Methods in Public Health II (or 140.652) 4
PH.140.623 Statistical Methods in Public Health III (or 140.653) 4
PH.140.624 Statistical Methods in Public Health IV (or 140.654) 4
PH.340.606 Methods for Conducting Systematic Reviews and Meta-Analyses 4
PH.340.751 Epidemiologic Methods 1 5
PH.340.752 Epidemiologic Methods 2 5
PH.340.753 Epidemiologic Methods 3 5

In place of 340.754, choose electives: 5 or more total credits, taken for grade

70 total credits are required: choose electives to reach 70

**Upon successful completion of the Master of Health Science, students will have mastered the following competencies:**

- Maintain an understanding and perspective on the importance of excellent and rigorous clinical research in public health and the practice of medicine
- Take a scholarly, comprehensive, and objective approach to the selection and formulation of a clinical research question
- Identify, interpret, and critique relevant clinical literature
- Effectively communicate scientific information to professionals and the lay public
- Demonstrate proficiency in the clinical skills needed to conduct clinical research and manage study subjects
- Provide advice on clinical research methods to professionals within and outside of the academic medical environment
- Identify analytical laboratory techniques and methodologies appropriate to answer a specific research question for a proposed study
- Prepare a scientific proposal
- Develop and write a study protocol using systematic protocol documentation
- Effectively manage a clinical study team
- Develop and implement an ongoing system for data intake and management
- Recruit study participants in an ethical manner
- Monitor study progress
- Analyze data
- Interpret statistical analysis
- Adhere to regulatory requirements