BIOMEDICAL AND HEALTH INFORMATICS, MS

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Degree: Master of Science (MS)
Field of Study: Biomedical and Health Informatics

Program Overview

The Master of Science in Biomedical and Health Informatics (BHI) program offers non-thesis and thesis-based options. While the usual time to completion with a full-time schedule is 16 months, students have the option of doing the non-thesis program intensively in 11 months. Part-time students are welcome to do the program at their preferred pace!

The BHI program offers pragmatic, interdisciplinary areas of study immediately relevant in contemporary health systems or research enterprises. Our Master's degree program is unique in that it encompasses both biomedical research and clinical care informatics with applications to precision medicine, accountable care organizations, and reproducible science. Our program provides grounding across multiple disciplines and will be of interest if you seek a career in which you:

• Analyze patient diagnoses, treatments and outcomes, based on electronic health records, to inform best practices in clinical care
• Design or manage studies in the clinical setting to inform quality and safety process improvements
• Collaborate in biomedical research, including the analysis of large genetic and various "omics" studies, integrated with clinical or population data, to advance the understanding of diseases
• Design and manage studies that draw from clinical, cohort or population data to inform the assessment and development of devices, therapeutics or other interventions

We bring together a diverse group of faculty from across Case Western Reserve University – the School of Medicine, clinical faculty from our affiliated hospitals, the Weatherhead School of Business, and the School of Engineering – for a cross-disciplinary approach that offers the opportunity to craft tailored areas of study grounded in core competencies:

• Data analytics
• Biomedical, clinical and/or population health research
• Computational and systems research design

Important Note: The program information contained on this page is current as of July 1st, 2022. For the most current information, we advise you to review the MS in Biomedical and Health Informatics program handbook. You can find the most recent Program Handbook here.

Graduate Policies

For graduate policies and procedures, please review the School of Graduate Studies section of the General Bulletin.

Program Requirements

Non-Thesis Program

This program requires 27 credits of coursework and a 3 credit project or internship/practicum, with a report that is evaluated by the student's mentorship/advisory committee.

Thesis Program

This is for students who may want to continue into a PhD program. It requires 24 credits of course work and six (6) credits developing and presenting a thesis, evaluated by the mentoring/advisory committee.

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<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>MPHP 532</td>
<td>Health Care Information Systems</td>
<td>9</td>
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<tr>
<td>PQHS 431</td>
<td>Statistical Methods I</td>
<td></td>
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<tr>
<td>PQHS 416</td>
<td>Computing in Biomedical Health Informatics</td>
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Biomedical and Health Courses

Choose one of the following:

- EBME 410 Medical Imaging Fundamentals
- MPH 406 History and Philosophy of Public Health
- PQHS 440 Introduction to Population Health
- PQHS 451 A Data-Driven Introduction to Genomics and Human Health
- PQHS 465 Design and Measurement in Population Health Sciences
- PQHS 490 Epidemiology: Introduction to Theory and Methods

Computation and System Design Courses

Choose one of the following:

- CSDS 410 Analysis of Algorithms
- CSDS 433 Database Systems
- CSDS 458 Introduction to Bioinformatics
- CSDS 477 Advanced Algorithms
- CSDS 493 Software Engineering
- PQHS 471 Machine Learning & Data Mining

Data Analytics Courses

Choose one of the following:

- EBME 419 Applied Probability and Stochastic Processes for Biology
- PQHS 432 Statistical Methods II
- PQHS 453 Categorical Data Analysis
- PQHS 459 Longitudinal Data Analysis
- PQHS 467 Comparative and Cost Effectiveness Research
- PQHS 515 Secondary Analysis of Large Health Care Databases

Elective Courses*

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<th>Title</th>
<th>Hours</th>
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<tr>
<td>PQHS 651</td>
<td>Thesis M.S.</td>
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<tr>
<td>or PQHS 602</td>
<td>Practicum</td>
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Total Hours

30

* Non-thesis Program requires 9 credit hours. Thesis Program requires 6 credit hours.
** Non-thesis Program requires PQHS 602 for 3 credit hours. Thesis Program requires PQHS 651 for 6 credit hours.

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