Health Infrastructures and Learning Systems (HILS)
MS and PhD Program
Why University of Michigan…

• Ranked Top 5 in US Public Universities

• #1 Public Research University

• Top Ranked Graduate Programs

• #13 Top Places to Live
1st

Graduate program in the world developing researchers and practitioners in learning health systems.
HILS = Interdisciplinary + Innovative

• Students learn skills to improve quality and safety to promote learning within health systems
• PhD = Research Scientists
• MS = Improvement & Implementation Leaders
The Learning Cycle

D2K: Data to Knowledge

K2P: Knowledge to Performance

P2D: Performance to Data

Formation of Learning Community

Health Problem of Interest
Learning Cycle Feedback Loops

People

Technology

Process

Policy

LHS INFRASTRUCTURE
Prototypic LHS Infrastructure Services

Health Problem of Interest

D2K: Data to Knowledge

K2P: Knowledge to Performance

P2D: Performance to Data

Technology & Policy for Making Knowledge Actionable & Sharable

Technology for Generating & Delivering Tailored Messages to Decision Makers

Technology for Sharing and Analyzing Data

Policies and Mechanisms Governing Access to and Use of Data

Methods and Processes for Promoting Behavior Change

Methods and Processes for Supporting Learning Communities

Technology for Capturing Practice Change
# HILS Degrees

<table>
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<tr>
<th>PhD</th>
<th>MS</th>
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<tr>
<td>• Minimum 36 Credits</td>
<td>• 27 Credits</td>
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<td>• Most receive 4 years full funding (GSRA)</td>
<td>• 3 semesters over 16 months</td>
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Summer Implementation Project

- Work with faculty related to focal area
- Apply solutions to current problems
## Course Sequence

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<td>Research Methods</td>
<td>Ethics &amp; Policy</td>
<td>Implementation project</td>
<td>Cognate / Elective</td>
<td>Advanced Selective</td>
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<td>Systems (LHS 671)</td>
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<td>Health Infrastructures</td>
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<td>Pro Seminar 1</td>
<td>Science in Health 1</td>
<td>Science in Health 2</td>
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<td>(LHS 650)</td>
<td>(LHS 621)</td>
<td>(LHS 721)</td>
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<td>Exploratory Data</td>
<td>Knowledge Representation &amp; Management</td>
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<td>Analysis for Health</td>
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*End of MS Program*
Learning Health Systems Courses

• Exploratory Data Analysis for Health

• Knowledge Representation & Management in Health

• Implementation Science in Health 1

• Health Infrastructures Pro Seminar 1

• Ethics & Policy Issues for Learning Health Systems
Research Methods Courses

• Research Methods for Learning Systems

• Advanced/Applied Research Methods
Cognate, Electives & Other Required Courses

• Responsible Conduct of Research (PIBS 503)

• Natural Language Processing on Health Data (option)

• Cognates/Electives are determined by student and advisor.

• Courses range from biostats, public health/policy, ethics, health management, women’s studies, nursing, IOE, epidemiology, social work and more.
Candidacy Requirements

• Complete coursework (36 credits)
• Pass qualifying exam (end of first year)
• Complete satisfactory literature review in area of research focus

Not required for candidacy, but required for PhD & MS to complete program:
• Summer implementation project (after first year of coursework)
Application Requirements

• Bachelor’s degree w/ 1 Stats class

• Personal & Academic Statement of Purpose

• Resume/CV

• Transcript + GRE Scores (Optional)

• Letters of Recommendation (3)
Application Tips

• Highlight Experience in Healthcare

• Interest in intensive computational activities

• Research the Faculty you want to work with
How to Apply

• Rackham Graduate School application

• Send Materials

• Deadlines: December 1 (PhD), February 1 (MS)
Contact HILS!

Medicine.umich.edu/dlhs-hils

General inquiries:

HILS-PHD-MS@umich.edu