HEALTH SCIENCES INFORMATICS, PHD

Health Sciences Informatics, PhD

The Ph.D. in Health Sciences Informatics offers the opportunity to participate in ground-breaking research projects in clinical informatics and data science at one of the world's finest biomedical research institutions. In keeping with the traditions of the Johns Hopkins University and the Johns Hopkins Hospital, the Ph.D. program seeks excellence and commitment in its students to further the prevention and management of disease through the continued exploration and development of health informatics, health IT, and data science. Resources include a highly collaborative clinical faculty committed to research at the patient, provider, and system levels. The admissions process will be highly selective and finely calibrated to complement the expertise of faculty mentors.

Areas of research:

- Standard Terminologies
- Precision Medicine Analytics
- Population Health Analytics
- Clinical Decision Support
- Translational Bioinformatics
- Health Information Exchange (HIE)
- Multi-Center Real World Data
- Telemedicine

Individuals wishing to prepare themselves for careers as independent researchers in health sciences informatics, with applications experience in informatics across the entire health/healthcare life cycle, should apply for admission to the doctoral program.

Admission Criteria

Applicants with the following types of degrees and qualifications will be considered:

- MA, MS, MPH, MLIS, MD, PhD, or other terminal degree, with relevant technical and quantitative competencies and evidence of scholarly accomplishment; or
- In exceptional circumstances, BA or BS, with relevant technical and quantitative competencies, with some combination of scholarly accomplishment and/or professional experience in a relevant field (e.g., biomedical research, data science, public health, etc.)

Relevant fields include: medicine, dentistry, veterinary science, nursing, ancillary clinical sciences, public health, librarianship, biomedical science, bioengineering and pharmaceutical sciences, and computer and information science. An undergraduate minor or major in information or computer science is highly desirable. Professional work experience in one of these fields is also highly desirable.

The application is made available online through Johns Hopkins School of Medicine's website (https://www.hopkinsmedicine.org/som/education-programs/graduate-programs/admissions/). Please note that paper applications are no longer accepted. The supporting documents listed below must be received by the SOM admissions office by December 15 of the following year. Applications will not be reviewed until they are complete and we have all supporting letters and documentation.

- Curriculum Vitae (including list of peer-reviewed publications and scientific presentations)
- Three Letters of Recommendation
- Statement of Purpose
- Official Transcripts from undergraduate and any graduate studies
- Certification of terminal degree
- You are also encouraged to submit a portfolio of published research, writing samples, and/or samples of website or system development

Please track submission of supporting documentation through the SLATE admissions portal.

If you have questions about your qualifications for this program, please contact JHInformatics@jhu.edu

Program Requirements

The PhD curriculum will be highly customized based on the student's background and needs. Specific courses and milestones will be developed in partnership with the student's advisor and the PhD Program Director.

The proposed curriculum is founded on four high-level principles:

- Achieving a balance between theory and research, and between breadth and depth of knowledge
- Creating a curriculum around student needs, background, and goals
- Teaching and research excellence
- Modeling professional behavior locally and nationally.

Individualized curriculum plans will be developed to build proficiencies in the following areas:

- Foundations of biomedical informatics: e.g., lifecycle of information systems, decision support
- Information and computer science: e.g., software engineering, programming languages, design and analysis of algorithms, data structures.
- Research methodology: research design, epidemiology, and systems evaluation; mathematics for computer science (discrete mathematics, probability theory), mathematical statistics, applied statistics, mathematics for statistics (linear algebra, sampling theory, statistical inference theory, probability); ethnographic methods.
- Implementation sciences: methods from the social sciences (e.g., organizational behavior and management, evaluation, ethics, health policy, communication, cognitive learning sciences, psychology, and sociological knowledge and methods), health economics, evidence-based practice, safety, quality.
- Specific informatics domains: clinical informatics, public health informatics, analytics
- Practical experience: experience in informatics research, experience with health information technology.

Basic Requirements

- "Core" courses
- Student Seminar & Grand Rounds
- Selective and Elective courses
- Mentored Research (in Year 1)

- Qualifying Exam (in Year 2)
- Proposal Defense (in Year 2 or 3)
- Dissertation (Years 2-4)
- Final Dissertation Defense (Year 4)
- Research Ethics