*Health Informatics

* Health Informatics is a discipline at the intersection of information science, computer science, social science, behavioral science and healthcare.

* It deals with resources, devices, and methods required to optimize the acquisition, storage, retrieval, and use of information in health biomedicine.

* Health informatics tools include computers, clinical guidelines, formal medical terminologies, and information and communication systems.

* It can be applied to the areas of nursing, clinical care, dentistry, pharmacy, public health, occupational therapy, physical therapy, (bio)medical research and alternative medicine.

*What is Health Informatics?

*Careers in Health Informatics

Health informatics is one of the fastest growing career fields. By combining their skills in public health and information, health informatics professionals can undertake many unique and important roles.

* Graduates with interests in **human behavior** may lead visioning and strategy for new ways of leveraging information to promote the improvement of individual health behaviors.

* Individuals with **entrepreneurial aspirations** may lead the development of applications or systems that improve the ways consumers and clinicians access and use information.

* Those with **technical interests** may find roles as application designers and developers, consultants, system analysts, and entrepreneurs.

* Individuals with **analytical and quantitative skills** can become quality improvement analysts, data miners, evaluation specialists, or clinical and public health researchers.

* **Policy-minded** graduates can be part of a new generation of informatics-enabled policy analysts and engage with ongoing health reform.

* Those who enter the program from the **health professions** will be able to assume positions as medical, nursing, or public health information or technology officers who envision new solutions to health care and delivery

Graduates will work in a wide range of settings and roles within them. Their activities will reflect the positioning of this program to prepare leaders at the forefront of a dynamic field.

HealthInformatics.UMich.edu/Careers

Education in Health Informatics

* Graduate program prerequisites vary widely.
    * Some programs are designed for individuals with a health professions degree (e.g., doctors, veterinarians, dentists, nurses) or significant work experience. Others are open to all students.
    * Common prerequisites include advanced mathematics, computer programming, statistics, and biology.
    * Most programs require GRE scores, letters of recommendation, and a statement of purpose.
* Programs often provide interdisciplinary training in areas including biology, research and clinical medicine, computer science, public health, data science and analytics, statistics, and engineering, among others.
* Most graduate programs will include a core, foundation set of courses, room for elective study, practical experience (i.e., internships), and research opportunities.
* Prospective applicants should consider the curriculum of each program of interest, since approach and focus varies.
* The American Medical Informatics Association (AMIA) provides a search engine to locate Academic Informatics Programs.

*Master of Health Informatics Sample Curriculum I

Core Area 1: Interdisciplinary
* Health Informatics Seminars I & II
* Introduction to Health Informatics
* Evaluation Methods in Health Informatics
* Managing Health Informatics
* Critical Policy Issues in Health IT
* Consumer Health Informatics
* Population Health Informatics

Core Area 2: Health system
* Survey of the US Health Care System

Core Area 3: Human and social behavior
* Behavioral & Social Science Foundations for Health Professions
* Introduction to Health Behavior Theory and Approaches

Core Area 4: Methods
* Strategies and Uses of Epidemiology
* Contextual Inquiry and Project Management
* Introduction to Biostatistics
* Applied Biostatistics
* Introduction to Statistics and Data Analysis

Core Area 5: Information Management, Retrieval, and Design
* Networked Computing: Storage, Communication & Processing
* Database Systems and Internet Applications in Health Care
* Design of Complex Websites
* Natural Language Processing
* Information Retrieval

MHI Electives
Students customize their program with courses from the School of Information, School of Public Health or other U Michigan departments with guidance of faculty advisor.

MHI Internship
Students complete a minimum of 400 hours of practical experience with the guidance of faculty advisor.

*Master of Health Informatics Sample Curriculum II

Fall, Year I
- Foundations of Clinical & Public Health Informatics
- Foundations of Bioinformatics
- Problem-Oriented Programming
- Introduction to Patient Care & Clinical Environment
- Mathematical Foundations of Biomedical Informatics
- Biomedical Informatics Journal Club

Spring, Year I
- Biomedical Informatics Project Course
- Problem-Oriented Programming
- Statistical Foundations of Biomedical Informatics
- Probabilistic Methods in Artificial Intelligence
- Biomedical Informatics Journal Club

Summer, Year I
- Elective

Fall, Year II
- Publication & Presentation in Biomedical Informatics
- Symbolic Methods in Artificial Intelligence
- Human Computer Interaction and Evaluation Methods

Spring, Year II
- Masters Research Project
- Elective of Choice

* Clinical informatics
* Clinical research informatics *(incl. data mining; knowledge representation and discovery; natural language processing)*
* Consumer health informatics
* Dental informatics
* Mental health informatics
* Nursing informatics
* Pharmacy informatics
* Primary care informatics
* Public health/population informatics
* Telemedicine and mobile computing informatics
* Translational bioinformatics
* Veterinary informatics

*Areas of Specialization

ExploreHealthCareers.org/en/Field/2/Informatics

*Careers in Health Informatics

* Chief Medical Information Officer
* Director of Clinical Informatics
* Clinical Data Analyst
* Health Informatics Consultant
* Healthcare IT Project Manager

Health IT-related jobs are projected to grow 22% from 2012 to 2022, much faster than the average for all other occupations. This is expected to increase with the need for experts to create and manage health 2.0 systems such as electronic health records (EHRs) and electronic medical records (EMRs), as well as handle medical reimbursement claims.

Articles of Interest: Jobs in Health Informatics (U of South Florida)
Consider a Career in Health Informatics (US News)

USFHealthOnline.com/resources/healthcare/what-is-health-informatics/#.VFlLzfldV8E

* The American Medical Informatics Association (AMIA)
* The American Health Information Management Association (AHIMA)
* American Society of Health Informatics Managers (ASHIM)
* Association for Veterinary Informatics (AVI)
* Healthcare Information and Management Systems Society (HIMSS)

*American Health Informatics Associations and Societies

A Sample of Health Informatics Programs & Opportunities

* University of Michigan: Master of Health Informatics

* Columbia University: Department of Biomedical Informatics (MA, PhD, MD/PhD)

* Stanford School of Medicine: Biomedical Informatics: PhD with Masters of Medicine

* Weill Cornell Medical College: Master of Science in Health Informatics

* University of Pittsburgh: Department of Biomedical Informatics (MS, PhD, MD/PhD)

* University of Miami School of Nursing & Health Studies: Master of Science, Health Informatics

* Vanderbilt Summer Research Internship Program in Biomedical Informatics

* The OH State University COM Internships in Biomedical Informatics

* Mayo Clinic Internships in Biomedical Statistics and Informatics