MS IN HEALTH INFORMATICS (MHI)

MHI 401-DL American Health Care System (1 Unit)
Provides knowledge of the key components of health care in the US-the policy, economic, and societal forces that shape health care delivery. An introduction to elements of the American health care system, including the provider components, the financing of health care, the basic structure of public policy making and public health systems, a comparative analysis of the American system to health care systems of other countries, and the legal and regulatory framework within the American health care system functions. In addition to the structural components of the system, the course reviews current issues within the American health care system, including public health, preparedness, quality of health care, health reform, payment mechanisms, and consumerism.

MHI 402-DL Introduction to Clinical Thinking (1 Unit)
Provides insight into the clinical care process. Designed for students not previously involved in clinical medicine as a nurse, pharmacist, or physician, as well as those trained in medicine outside the U.S. Includes basic medical terminology and introductory psychophysiology. Topics include eliciting information from patients, synthesizing history and physical examination, decision making for ordering tests, establishing diagnoses, treatment planning, integrating evidence-based medicine, and using an intelligent medical record in a complex environment.

MHI 403-DL Fundamentals of Health Informatics (1 Unit)
The course is an introductory survey of fundamentals of health information technology. Topics center on how information technology enables patient care, how information technology is used by healthcare providers and caregivers, and it's use to fuel modern health care organizations. This course provides an overview of health informatics with emphasis on the factors that helped create and sustain this new field, the key players involved, and the impact health information technology is having on the delivery of care in a rapidly changing healthcare marketplace.

MHI 404-DL Health Care Operations (1 Unit)
This course examines various aspects of healthcare delivery, with a special focus on healthcare operations and its management to confront the many challenges faced by modern healthcare organizations today with the limited resources at their disposal. Students will learn about the role of strategic planning and governance, interdisciplinary care, patient safety and quality improvement, emergency preparedness, cybersecurity, finance, change management, information technology and data analytics. Recommended taking after MHI 401-DL and MHI 403-DL.

MHI 405-DL HIT Standards and Interoperability (1 Unit)
This course provides concepts and practical examples of health care information interoperability, standard terminologies, messaging standards, health information exchanges (HIEs), and projects deploying these capabilities. Topics covered by the course include the importance of standards; information architecture and application programming interfaces (APIs); principles and examples of standard terminologies; current messaging standards; and their use in health information exchanges for coordination of care and payment reform. Core principles, challenges, benefits, and limitations will be discussed in each of these topics.

MHI 406-DL Decision Support Systems and Health Care (1 Unit)
This course provides an introduction to decision analysis with an emphasis on medical decision-making and elements of human cognition under uncertainty. Topics include structuring decision problems and developing creative decision options, quantifying uncertainty and preferences, and combining them to arrive at optimal decisions. Also provides the foundation needed to apply the methods of decision analysis in decision support systems and intelligent systems. Students become familiar with the graphical display of medical information, decision analysis and modeling, evidence-based medicine, Bayes' theorem, knowledge-based systems, learning systems, lexicons, coding and structured data entry, and data mining techniques.

MHI 407-DL Legal, Ethical, and Social Issues (1 Unit)
The American health care landscape is incredibly dynamic, rapidly evolving, and highly regulated. This course explores the intersection of compelling legal, ethical, and social facets that impact the health care enterprise. The content, research, and group discussions support informaticists in building knowledge they need to navigate competing interests, underlying ethical principles, and key regulatory requirements. The course integrates changing financing paradigms, reimagined health care services delivery systems, the tension between precision medicine and population health, and evolving consumer expectations in the digital age. The challenges of safeguarding individual privacy rights and data security are assessed, along with the promise of innovative public-private partnerships that are shaping health informatics in the Learning Health Care System.

MHI 408-DL Information System Acquisition & Lifecycle (1 Unit)
A practical course on acquiring and assessing new medical technology, either as a vendor who needs to know how to meet the expectations of customers and their acquisition requirements or as a customer/practitioner who must know how to validate technology selections and implementations. Topics include cost analysis and justification, economic models, capital purchase, leasing strategies, the application service provider or risk-sharing model, purchase agreements and contracts, writing a RFP, analyzing a RFP response, and industry business trends.

MHI 413-DL Consumer Digital Health (1 Unit)
This course introduces the emerging practice area of Consumer eHealth, the aim of which is to empower consumers to better manage and influence their health and wellness, access healthcare services, and improve interactions with their caregivers by leveraging digital health solutions and services. Topics include solutions that emphasize the consumer experience (CX), new consumer access models and modalities, consumer-oriented technologies and systems such as APPs and health and wellness devices and platforms, HIPAA-compliant cloud based services, the use of innovative wearables (i.e., electronic tattoos), internables/ingestibles and consumables, and behavioral management solutions such a Digiceuticals and PHRs.

MHI 498-DL Capstone Project (1 Unit)
As a culminating experience, students will put into practice the knowledge and skills they have learned during their coursework through a Capstone Project. Students will have the opportunity to develop and implement a Health Informatics project with an industry or university partner or in their workplace. Alternatively, students can develop a culminating, two-part project. This alternative capstone project will leverage health informatics to provide an innovative, consultative response to a need or problem arising as part of a real-world case study. The project will challenge each student to conduct and integrate comprehensive research and to apply knowledge, skills, and competencies built through coursework they have completed in the MHI program. In addition to each student's individual research and project development, the course emphasizes collaboration with fellow students by using the Canvas discussion board to crowdsource strategies and approaches for their Capstone Project. Each student will work with the

instructor to establish an "Advisory Committee" for their project which, ideally, will be comprised of a "Knowledge Expert" from the organization they are working with and a faculty advisor from the Northwestern University Health Informatics program. (Required: The earliest students may take Capstone is in the quarter of their final MHI course in the program.)

MHI 590-0 Thesis Research (1 Unit)
This final project is meant to represent the culmination of students' experience in the program and must demonstrate mastery of the curriculum and ability to conduct sustained independent research and analysis. The project may be applied or may be a traditional scholarly paper, in both cases a write-up following the paper's program-specific guidelines is required. Students must submit a proposal and secure a first reader in order to register; for further details students are advised to review the student handbook and contact their academic adviser. (Required: Completion of all core courses in the student's graduate program and specialization.)