Course Descriptions
Master of Science in Health Informatics
2020-2021 Academic Catalog

CAPS 08106 Professional Track   **3 credit hours**
This capstone course provides students with an integrative learning experience and a synthesis of knowledge combining theory and applications of health informatics and healthcare delivery. This course builds upon previous coursework and includes applications of theories to practical issues in the field of health informatics.
Pre-requisites: all didactic coursework up to last trimester. May be taken with one elective.

HLTI 05101 Information Systems Management   **3 credit hours**
This course covers the fundamental concepts of managing an organization's information systems portfolio. Topics include the entire lifecycle of information technologies in a typical healthcare environment. This includes the need for technology, requesting, selecting, acquiring, implementing, and supporting information technology solutions. Complementary topics such as information security, IT governance, and enterprise architecture are included.
Pre-requisites: HLTS 05101 Intro to HI

HLTI 05102 Systems Analysis and Design   **3 credit hours**
This course explores the development of healthcare information systems through the use of a systems development lifecycle. It will assist the learner in examining the techniques and core skills used to develop an information system. This course will examine the four phases all information system design projects move through: Planning, analysis, design and implementation. Additional areas that must be considered when developing an information system, such as change management and team building, will also be covered.
Pre-requisites: HLTS 05101 Intro to HI

HLTI 05103 Consumer Health Informatics   **3 credit hours**
This course focuses on the information and technologies used by consumers to manage their health. Topics include such things as health literacy, quality of consumer health information, and Internet-based information delivery.
Pre-requisites: HLTS 05101 Intro to HI

HLTI 05201 Data Management in Healthcare   **3 credit hours**
This course acquaints the student with data principles and their application to healthcare information system selection and usage. It introduces the Data-Information-Knowledge-Wisdom framework as the essence of data management, driving data capture and use in the standardization of evidenced-based practices and patient-centered care. Topics include big data, knowledge management, quality analysis, surveillance, and interoperability, as well as data warehousing and data mining.
Pre-requisites: HLTS 05101 Intro to HI

HLTI 05202 Legal and Ethical Issues in Health Informatics   **3 credit hours**
This course introduces students to the ethical, legal, and regulatory issues relevant to the use of information technology in healthcare. Topics include such things as protection of patient information, intellectual property, computer and software law, professional ethics and responsibilities, and regulatory issues that impact the management of electronic health information.
Pre-requisites: HLTS 05101 Intro to HI

HLTI 05300 End User Information Systems   **3 credit hours**
This course emphasizes methods used to plan for and implement information technologies in the workplace. Advances in information systems hardware and software, emphasizing applications designed for technology end users are discussed. Emphasis is on understanding end-user needs and how to select or design systems to address those needs. Work flow and systems analysis methodology, work (re)design, organizational change, systems implementation, and management issues are covered.
Pre-requisites:

HLTI 06102 Leadership Skills for Health Informatics Professionals   **3 credit hours**
The purpose of this course is to prepare students to become successful leaders in a healthcare setting. Those already in leadership roles will further their leadership skills. Students will apply leadership theories, concepts, and skills in case studies and analyses of known leaders, and also in assessment of their own leadership potential.
Pre-requisites: HLTS 05101 Intro to HI

HLTI 06200 Programming for Data Analytics   **3 credit hours**
This course introduces students to concepts in computer programming using the Python programming language. In this course, students will learn to conceptualize steps required to perform a task, manipulate files, create loops, and functions. By the end of this course, students will have a basic understanding of computer programming, a working knowledge of the Python programming language, and they will be able to share their scripts to collaborate with other team members.
Pre-requisites:

HLTI 06201 Mining, Modeling, and Machine Learning   **3 credit hours**
This course provides a practical survey of several mining, modeling, and modern machine learning techniques that can be applied to make informed business decisions. In this class, students will examine how each of these methods learns from past data to find underlying patterns useful for prediction, classification, and exploratory data analysis.
Pre-requisites:

HLTI 06202 Information Design and Visual Analytics   **3 credit hours**
The course introduces the systematic use of visualization techniques for supporting the discovery of new information as well as the effective presentation of known facts. Properly constructed visualizations allow us to analyze data by exploring it from different perspectives and using the power of our visual system to quickly reveal patterns and relationships. Based on principles from art, graphic design, perceptual psychology, and rhetoric, this course offers students an opportunity to learn how to successfully choose appropriate visual languages for representing various kinds of data to support insights relevant to the user's goals. Covers principles of visual perception and color theory for revealing patterns in data; narrative strategies for communicating and presenting

information and evidence; and the critical evaluation and critique of data visualizations. Students will also learn how to use Tableau, a state-of-the-art information visualization tool to produce and deliver visualizations and dashboards quickly and easily.
Pre-requisites:

HLTM 05202 Project Management   **3 credit hours**
This course provides a comprehensive foundation of the theory and concepts of project management. Included is a focus on the initiation, planning, executing, monitoring and controlling, and closure phases of a typical healthcare information technology project. Emphasis is given to practical tools and techniques that will allow the HIT professional to repeatedly conduct successful healthcare projects.
Pre-requisites: HLTS 05101 Intro to HI

HLTM 05203 Business and Financial Skills for Health Informatics Professionals   **3 credit hrs.**
This course will focus on the critical business and financial skills/processes needed in the acquisition and management of health information systems and other technologies. It extends traditional project management skills to include specialized skills including the development of vendor relationships, the request for proposal process, contractual considerations, and the budgetary processes behind IT operational and strategic decision making. This course also reviews the business and financial considerations of forming and operating health information technology ventures.
Pre-requisites: HLTS05101 Intro to HI; HLTM05202 Project Mgmt; HLTI05101 Information Systems Mgmt

HLTM 05204 Operations in Healthcare Organizations   **3 credit hours**
The course examines operational issues in health care management. Topics include systems analysis, continuous quality improvement and re-engineering, demand forecasting, facility location and design models, decision analysis techniques, linear programming, queuing and waiting models, inventory control models, and statistical quality control. The goal is to instill an understanding of the language, applications, and limitations of quantitative models with regard to decision making and problem solving in health care organizations.
Pre-requisites:

HLTM 06100 Informatics, Quality, and Strategy in Healthcare Organizations   **3 credit hours**
This course examines the process for reviewing, monitoring, improving and evaluating health care services. Health services accreditation standards will be explored. The role of information technology in providing data for the documentation and evaluation of client outcomes will be emphasized. This course will also examine the historical development, current concepts and techniques and future trends related to the monitoring and evaluation of the quality of health care services. Cases will be used to present current issues surrounding attempts to integrate quality management and increased accountability in health care organization.
Pre-requisites:

HLTM 07101 Organizational Change and Development   **3 credit hours**
In this course, students will research and understand organizational change with an emphasis on transformational change (change that occurs at a fundamental level of the system). Strategies for identifying and positively affecting the core of the organization will be discussed and demonstrated.

Further, students will also practice and self-reflect on the strategies, models, and methods for adapting to and affecting change in interpersonal and group situations.
Pre-requisites:

HLTS 05101 Introduction to Health Informatics and Technology   3 credit hours
This course will provide an overview of health informatics focused on a variety of introductory subjects such as an overview of the health informatics field, privacy and security, the electronic health record, clinical decision support systems, healthcare's technical infrastructure, the e-patient, patient safety/quality initiatives, and standardization of healthcare data. This course will also provide an introduction to computer systems used in healthcare. Such topics as hardware, software, networks, databases, clinical applications, and security will be covered.
Pre-requisites:

HLTS 05201 Health Communications   3 credit hours
This course introduces students to the field of health communication theory and practice, and its key action areas. This course prepares students to design, implement and evaluate health communication interventions within a systematic, participatory, engaging, process-oriented, and multidisciplinary framework that aims at behavioral, social, and organizational results and ultimately, improved public health outcomes. As health communication is grounded in many theories and principles (e.g., behavioral and social change, marketing, intergroup, sociology, anthropology, cultural-centered and positive deviance theory, mass media and new media theory, medical models, community organizing, social networks, etc.) that are also shared by other disciplines in the public health, health care, and community development fields, these theories will be briefly reviewed in relation to their specific application to health communication theory and practice.
Pre-requisites:

HLTS 06100 Healthcare Economics   3 credit hours
This course provides an overview of the United States healthcare system using a microeconomics lens. Students will be introduced to microeconomic theory and empirical studies that will deepen your understanding of how consumers, firms, and the government influence healthcare expenditures (including its quantity and prices), healthcare quality, and patient health outcomes. These economic models will enable students to predict how changes in consumer behavior, the industrial organization of firms, and government policies affect healthcare and health outcomes.
Pre-requisites:

HLTS 06106 Health Policy   3 credit hours
This is a survey course in U.S. health policy and law. In this course, students are introduced to financial and organizational influences that shape health policy. This course provides students with both the historical and current political context of health care in the U.S. and provides strategies for analysis of health policy issues. The course also examines select problems in the current health care environment and encourages students to think critically in ways to solve these problems through involvement with public and private policymakers and through effective communication in the policy environment.
Pre-requisites:

RMET 05101 Research Methods in Healthcare   **3 credit hours**

In this course, students will learn to evaluate the scientific/clinical literature for reliability and validity as well as the potential clinical significance of research results. Students will learn how to: identify limitations of research findings and recognize the multiple sources of research design error and researcher bias, how to evaluate reliable research study designs and experiments, how to create the various types of study designs and understand when each design is appropriate, how to write and test hypotheses, and how to find, correctly cite, and analyze peer-reviewed literature.

Pre-requisites:

Students in the MSHI program must complete 6 courses prior to taking this course.

Students in the MSNHP program must complete 4 courses prior to taking this course.