HEALTH INFORMATICS (HIN)

HIN 410 - PRINCIPLES IN HEALTH INFORMATICS
The HIN 410 course presents the fundamental principles, concepts, and technological elements that make up the building blocks of Health Informatics. It introduces fundamental characteristics of data, information, and knowledge in the domain, the common algorithms for health applications, and IT components in representative clinical processes.
Credits: 3

HIN 420 - CLINICAL, REVENUE, AND ADMINISTRATIVE SYSTEMS AND MEDICAL VOCABULARY
This course presents clinical and administrative systems with an emphasis on clinical decision support methods, tools, and systems. Types of methods, tools, and systems used in inpatient and outpatient settings, information flow across systems within healthcare settings, strategies for user-centered design, implementation, and evaluation of systems. HC Revenue systems are also presented. Students will add knowledge and proper use of medical vocabularies and classification systems commonly used in contemporary healthcare systems. Clinical and administrative data standards are necessary for semantic interoperability which enables effective exchange of health information. Emphasis is placed on learning about medical vocabularies and classification systems for an area of domain coverage in accordance with regulatory requirements.
Credits: 3
Prerequisites: HIN 410

HIN 430 - HIN PYTHON PROGRAMMING
Using the Python programming language to learn the best-practices of programming and script-writing in a security and utility conscious environment.
Credits: 3
Prerequisites: HIN 410

HIN 440 - ADVANCED DATA MANAGEMENT & ANALYTICS IN HEALTHCARE
Organizations today are inundated with data, gathered from both inside and outside the organization. To improve business decisions, analytics for big data-at-rest and big data-in-motion must be explored. This course introduces the concept of business analytical methods, models and in particular the analysis of big data, that is, data sets so large that traditional relational database management systems and computing platforms are insufficient. Hadoop architecture with MapReduce and its ecosystems will be discussed. Students will have a chance to work with big data analytic tools from IBM and Microsoft.
Credits: 3
Prerequisites: INFS 412 and INFS 413

HIN 450 - DATA SCIENCE AND STATISTICS
This data science course introduces students to Statistics, Programming, Machine Learning, Artificial Intelligence, Mathematics, and Data Mining.
Credits: 3
Prerequisites: CST 406 or (CST 421 and HEAL 470)

HIN 455 - HIN DATABASE SYSTEMS
This is an introductory course in database management. It examines the evolution from file processing system to the database systems spanning a variety of database technologies from 1970s to 2000 and beyond. It explores the concepts and techniques of database analysis and logical design employing Entity Relationship modeling and relational database design. Implementation employing SQL (Structured Query Language) and physical database design techniques will be studied. Advanced topics including data warehousing, Big Data technologies, and business intelligence are investigated.
Credits: 3

HIN 460 - HEALTHCARE THEORY AND SOCIAL ORGANIZATIONAL ISSUES
This course presents leading HC theory and social and political motivations including Social Cognitive Theory, The Transtheoretical Model/Stages of Change, the Health Belief Model, and the Theory of Planned Behavior, Critical Theory in Healthcare and discusses social and organizational issues.
Credits: 3
Prerequisites: HIN 430
Course Notes: Open to Health Informatics students only

HIN 465 - DATA VISUALIZATION
This course is designed to introduce data visualization as an analytical tool, a medium of communication, and the basis for interactive information dashboards. Students will learn best practices in data visualization, sharpen analytical skills, and learn how to design reporting for use by stakeholders using programs such as R and Tableau.
Credits: 3
Course Notes: 8 week course

HIN 470 - ETHICS AND HEALTHCARE INFORMATICS LAW
This course discusses ethical theory and decision-making in HC settings and laws pertaining to HIN such as HIPAA, GINA, HITECH, 21st Century Cures Act, CCPA, General Data Protection Regulation, Information Blocking Rule, Interoperability and Patient Access Final Rule.
Credits: 3

HIN 480 - HIN RESEARCH METHODS
Empirical and qualitative methods of research including descriptive, relational, and experimental approaches. The application of relevant research findings to inform the practice of Health Informatics. Students will be prepared to evaluate methodology in published research and be taught how to design their own research studies. The skills learned will help them to analyze and utilize data to increase the effectiveness of interventions and programs. Students will also start on a Literature Review in anticipation for HIN 490/495.
Credits: 3
Course Notes: 8 week class

HIN 485 - PROFESSIONAL DEVELOPMENT
This course is designed to expand and track the personal and professional growth of students and to assist students focus their career direction (hospital, managed care, IT/data science). This course is designed to enhance the attributes needed by new HIN practitioners (advocacy, inter-professional collaboration, cultural awareness, self-awareness, leadership, innovation and entrepreneurship, and professionalism). Students will be guided through the resume development and interviewing process. Students will also become familiar with social media and creating personal brands.
Credits: 3
Course Notes: 8 week class

HIN 490 - HEALTH INFORMATICS INTERNSHIP
Students will apply theories and principles from course work in a final thesis/research project that demonstrates their development, integration, and application of degree competencies. Students may select from a research project based on an internship in a healthcare setting (HIN 490) or a research project in line with future career interests (HIN 495).
Credits: 3
Prerequisites: HIN 440 (may be taken concurrently) and HIN 450 (may be taken concurrently)
Course Notes: Course to be taken in last semester of the MS Health Informatics program. Special approval needed from Health Informatics Program Director.

HIN 495 - HEALTH INFORMATICS RESEARCH PROJECT
Directed research study in selected areas of health informatics.
Credits: 3
Prerequisites: HIN 440 (may be taken concurrently) and HIN 450 (may be taken concurrently)
Course Notes: To be completed in last semester of Health Informatics program. Special approval needed from Health Informatics Program Director.

HIN 499 - HEALTH INFORMATICS CURRIUCLAR PRACTICAL TRAINING
Health Informatics international students who have work opportunities related to their academic program need to register for this course to remain in visa compliance. This course is available for registration for any health informatics international student who have successfully completed one semester of graduate work at the university.
Credits: 0
Course Notes: Required for international health informatics who will be working in their academic program outside of the university.