APPLIED HEALTH INFORMATICS (HINF)

HINF 6101. Concepts in Health Informatics. (4 Credits)
This course provides an overview of the academic discipline of health informatics, which itself is the confluence of the disciplines of healthcare, information science, computer science, and engineering. It provides students with their first hands-on experience with the open source software tools which underpin this applied health informatics program. The first lecture provides a general overview of health informatics, in alignment with the general structure of course topics in this program. Subsequent lectures provide an overview of each topic that is covered in more detail in the other eight courses. Note: Four-credit courses that meet for 150 minutes per week require three additional hours of class preparation per week on the part of the student in lieu of an additional hour of formal instruction.
Mutually Exclusive: CISC 6700.

HINF 6103. Models for Clinical Information. (4 Credits)
This course provides a broad perspective on the key concepts, requirements, and standards for modelling clinical information. Creating and managing clinical information using structured models is an essential requirement for many informatics services, including detailed analysis and reporting, decision support, big data analysis, and artificial intelligence. The two key international standards—ISO 13606 and Health Level 7 (HL7)—provide flexible frameworks for representing structured clinical information; an understanding of their scope and capabilities is essential for any student of health informatics. Note: Four-credit courses that meet for 150 minutes per week require three additional hours of class preparation per week on the part of the student in lieu of an additional hour of formal instruction.

HINF 6105. Electronic Health Records. (4 Credits)
The electronic health record can provide a full cradle-to-grave (longitudinal) record for a patient that is a vital tool to assist the provision of care in any setting: primary, secondary, or tertiary. In addition, a properly structured and coded record can act as a rich source of information for clinical studies and trials. This course provides students with hands-on experience of the requirements and functionality of electronic health records systems. The emphasis is on the use of patient centered record systems that manage structured clinical information. Students learn the importance of the EHR as a repository for clinical information, and the key functional requirements for working with the patient record: clinical data entry, viewing of the full longitudinal record, clinical correspondence, scheduling, ordering, and prescribing. Note: Four-credit courses that meet for 150 minutes per week require three additional hours of class preparation per week on the part of the student in lieu of an additional hour of formal instruction.

HINF 6111. The Business of Health Informatics. (4 Credits)
This course aims to equip students with the knowledge needed to apply health informatics for success in allied business environments —whether that environment is a public health service, a care provider organization, hospital, clinic, ancillary service provider, supplier business, or entrepreneurial start-up. Note: Four-credit courses that meet for 150 minutes per week require three additional hours of class preparation per week on the part of the student in lieu of an additional hour of formal instruction.
HINF 6119. Analysis and Reporting in Healthcare. (4 Credits)
This course provides an overview and practical experience in the key tools and techniques for analyzing and reporting healthcare information. This includes the full longitudinal record for a single patient as well as the combined information set for a cohort of many patients. Those patient cohorts may first be assembled through query of the EHR, to satisfy requirements for reporting of clinical outcomes or measuring the effectiveness of clinical services. Or the cohorts may have been selected as part of clinical studies or trials, which have specific standards and requirements for analysis and reporting. Students learn about statistical techniques that have a long history of use in health informatics, together with newer techniques for analyzing “big data” generated from large scale, structured health records systems. Note: Four-credit courses that meet for 150 minutes per week require three additional hours of class preparation per week on the part of the student in lieu of an additional hour of formal instruction.

Mutually Exclusive: CISC 5109.

HINF 6210. XML in Healthcare. (4 Credits)
This course provides a hands-on introduction to the use of XML in healthcare. It starts with the basics of the XML syntax, builds through the introduction of related XML standards, and then takes a look at how XML is used for structured messages, information storage, semantic technologies, and ontologies. The final topics of the course look at the use of XML for Artificial Intelligence in Healthcare and for Electronic Health Records. Each class consists of a lecture, followed by a hands-on exercise that students complete using the machines and software provided, with the assistance of the course tutors.

HINF 6211. Health Data Analytics Leadership. (4 Credits)
This is a course in leadership development. It is geared for both purchasers and sellers of analytics. The goal is to continuously improve the demonstrable value of health care. Each topic covers a vital step in the process to achieve that goal. The objectives are to understand the types and value of health data analytics, appreciate the perspectives of both buyers and sellers of health data analytics, learn how to introduce effective analytics capabilities to a health care organization, and equip students with the skills required to be a chief analytics officer.

HINF 6212. State of the Art in Health Informatics. (4 Credits)
This course covers special topics in health informatics that reflect the current state of the art or lie outside the scope of the other courses offered. As with all the courses, the emphasis is on hands-on experience and applied knowledge of technology. The syllabus for this course is reviewed at regular intervals to ensure that it reflects current trends in the ever-changing field. Reflecting this, guest lecturers are engaged for many of the classes, to bring practical expertise, relevant expertise, and an insight into current practices.

HINF 6300. Special Topics in Applied Health Informatics. (4 Credits)
This course covers special topics in health informatics which reflect the state-of-the-art or lie outside the scope of the other courses offered. As with all the courses, the emphasis is on hands-on experience and applied knowledge of technology. The syllabus for this course is reviewed at regular intervals to ensure that it reflects current trends in the ever-changing field. Reflecting this, guest lecturers are engaged for many of the classes, to bring practical expertise, relevant expertise, and an insight into current practices. Note: Four-credit courses that meet for 150 minutes per week require three additional hours of class preparation per week on the part of the student in lieu of an additional hour of formal instruction.