

CS 6440 Syllabus

Introduction to Health Informatics (CS 6440) is designed so that students with a variety of backgrounds can gain basic proficiency in health informatics. Health informatics encompasses the application of computing to: healthcare delivery; population and public health; community-based clinical research; and the potential for big data and analytics to transform the field. This is distinct from the related field of bioinformatics, which explores the role of computing in understanding the genomic and proteomic processes within cells.

During CS 6440, students will explore health information technology through projects designed to provide a hands-on experience with state-of-the-art health informatics tools and systems such HL7 FHIR, SMART, CDS Hooks, OMOPonFHIR, OHDSI Atlas, OMOP CDM and more!. They will apply the knowledge and skills they learn to work individually and with a team of their classmates on a real-world clinical challenges.

Objectives

There are four primary objectives for the course:

1. To provide a broad survey of technical challenges and potential solutions in healthcare
2. To provide hands-on exposure to the technical tools and standards currently available with in the field
3. To develop relevant design and programming skills that will help you to build meaningful healthcare solutions
4. To develop the basic skills necessary to pursue research and/or a career in health informatics

Topics

- Health Informatics
 - o Current State of Healthcare
 - o Technical Challenges in Healthcare
 - o Laws, Policy & Regulations
 - o Software Development in Healthcare
- Analytics & Visualizations
 - o Data Standards
 - OHDSI Atlas
 - o R Studio
 - o ClarityNLP
 - o Leaf
 - o Excel

- Interoperability
 - HL7 FHIR
 - HAPI FHIR
 - SMART on FHIR
 - OMOP on FHIR
 - OMOP CDM
 - CDS Hooks
 - DaVinci
 - And more...