CSE4095 02/5810 01 Introduction to Biomedical Informatics

Informatics is the management and processing of data from many different contexts, including information classification (ontologies), collection, storage, analysis, dissemination, etc. Such a wide view often combines the fields of computing (store, process, and model information), social science (interactions of users and presenting information in appropriate contexts), and statistics (analysis of information). Biomedical informatics (BMI) represents a wide range of information associated with the research and practice of medicine including: clinical informatics (information on patients for patient care), bioinformatics (from genomics to proteomics), public health informatics (information form the public sector - federal and state), clinical research informatics (de-identified repositories and databases that facilitate epidemiological research), etc.

In this course, we will explore various topics in biomedical informatics (BMI), examining a wide variety of topics including: overview of biomedical informatics; introduction to various Health Information Technology systems; overview of security and privacy concepts with a particular emphasis on medical and patient data; XML and its role in data standards for BMI; the fast Healthcare interoperability resource FHIR standard; security models for BMI; architectural alternatives for data repositories to support health information exchange; SOA and grid computing for BMI; etc.