

CSE5810 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 from 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 both the computing infrastructure. To set the background for the course, from the medical side, our focus will be on clinical and translational science¹ (which involves research underway (clinical drug or patient-care studies), the translation of successful research results into the general community (a new medical treatment goes from clinical studies to health care providers), the translation back to the bench (based on additional information learned during the usage of the new medical treatment in the community), and so on. From the computing side, our focus will be in a wide variety of topics including: XML and its role in data standards for BMI; security models for BMI; architectural alternatives for data repositories to support clinical research;

¹ <http://grants.nih.gov/grants/guide/rfa-files/RFA-RM-07-007.html>