BMI   Biomedical Informatics

BMI 633 INTRODUCTION TO BIOINFORMATICS.   (3)
This is an introductory course aimed at a multi-disciplinary audience with an interest in applying the principles of information sciences for obtaining insight into biological processes and systems that can eventually be used to make informed decisions.

BMI 730 PRINCIPLES OF CLINICAL INFORMATICS.   (3)
This course offers an overview of Clinical informatics, which is the application of informatics principles, methods, and tools to support healthcare practice and research activities as well as business processes.

BMI 731 BIOMEDICAL INFORMATION RETRIEVAL.   (3)
This class is an introductory information retrieval class that is focused on biomedical information search engines. Basic IR concepts such index construction, optimization, visualization, and evaluation will be covered. In addition to core IR contexts, students will have an opportunity to learn about search engines, web crawling, and some Web 2.0 technologies based on hands-on exercises and assignments with a focus on techniques that can be used to access, retrieve, organize, and present information. Students will employ an open source indexing engine (e.g., Lemur or Lucene or something similar) to understand how back-end of retrieval engine is effectively and efficiently structured.

BMI 732 BIOMEDICAL ONTOLOGIES AND SEMANTIC WEB TECHNIQUES.   (3)
This course is a conceptual introduction to biomedical ontologies and ontological modeling in biomedicine through Semantic Web techniques. Students will learn about RDF, OWL, description logics, and SPARQL and their role in designing ontologies. Biomedical terminologies such as GO, ICD-9/10, SNOMED-CT, and MeSH will be discussed as case studies. Prereq: MA 123 (or equivalent) or consent of the instructor.

BMI 733 BIOMEDICAL NATURAL LANGUAGE PROCESSING.   (3)
This course is a technical introduction to the area of biomedical natural language processing (NLP). In the field of biomedical informatics, this focuses on the common steps in extracting information from textual data that arises from biomedical literature and clinical documents. Topics involve n-gram models, tokenization, POS tagging, and parsing. Prereq: MA 123 (or equivalent) or consent of instructor.

BMI 734 INTRODUCTION TO BIOMEDICAL IMAGE ANALYSIS.   (3)
This class aims to give students a broad overview of biomedical image analysis and imaging informatics. We will introduce the state-of-the-art knowledge to understand, develop, and apply existing methods and software to handle biomedical image data to extract quantitative matrices.

BMI 735 INTRODUCTION TO BIOIMAGE INFORMATICS.   (3)
This class provides an introduction to searching and retrieval in biomedical image analysis and imaging informatics. We will introduce some advanced biomedical image analysis, searching, and retrieval algorithm for fast and efficient image searching and retrieval. Prereq: BMI 734: Introduction to Biomedical Image Analysis.