

CS 580: Medical Informatics

Objectives

- To cover the basic algorithms and techniques used in bioinformatics, to give the student a good basis for work in this highly relevant field.

Prerequisites

- CS 430, Probability theory, Linear algebra.

Syllabus

- Introduction 1.5 hours
 - Molecular biology basics
 - DNA, RNA, Protein
- Genomics 1.5 hours
- Restriction mapping 5.0 hours
- Map assembly 5.0 hours
- Sequence comparison 5.0 hours
 - Exact and inexact matching
 - Global and local alignment
- Multiple alignment, Dynamic time-warping, FASTA, BLAST 5.0 hours
- Protein structure prediction and matching 5.0 hours
- Gene prediction 6.0 hours
 - Hidden Markov Models
 - Other modeling techniques

Total 45 hours

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