Introduction to Bioinformatics – 236523 – Winter 2018-2019

The course objective is to introduce the bioinformatics discipline to computer science and biology students. The course will make the students familiar with the major biological questions which can be addressed by bioinformatics tools and introduce the major tools used in the field, such as tools for sequence and structure analysis. We will also learn the basic principles employed in bioinformatics algorithms though the course does not involve writing algorithms or mathematical proofs.

Main Topics

1. Introduction to bioinformatics
2. Sequence pairwise alignment
3. Genomic database searches
4. Protein alignments
5. DNA sequencing and genetic variations analysis
6. RNA sequencing and gene expression analysis
7. Motif search and protein function prediction
8. Structural bioinformatics (proteins and RNA)
9. Biological networks

Course Structure

- 2 hours Lecture
  
  Monday 15:30-17:30, Ulman 801

- 1 hour tutorial
  
  Monday 11:30-12:30, Ulman 707
  or
  Monday 14:30-15:30, Ulman 707

Home work (20% of final grade)

- Homework assignments will be given every second week
- The homework will be conducted in pairs.
- 4/4 homework assignments will be submitted

Final project (80% of the final grade)

- The final project will be conducted in pairs.
- Projects will be presented as a posters after the end of the semester.