1-2-2046
Syllabus Analysis of Biological Networks
2.5 credits

Fait Aaron

1. Networks
   1.1. Introduction or “Why should we care about networks?”
   1.2. Networks in Biology
   1.3. Properties of Biological Networks
   1.4. Excerpts from Barabasi legacy

2. Graph Theory
   2.1. Graphs and their properties
   2.2. Representation and Algorithms

3. Global Network Analysis or “how to make sense of it all?”
   3.1. Global and Local Properties
   3.2. Models of Complex Networks
   3.3. Statistics of Net properties

4. Network Motifs
   4.1. Detection of Motifs
   4.2. Tools for Motifs Analysis

5. From theory to real life
   5.1. Signal Transduction and Gene Regulation Networks
   5.2. Protein Interaction Networks
   5.3. Metabolic Networks
   5.4. Ecological Networks
   5.5. Phylogenetic Networks
   5.6. Correlation Networks

Readings

The Regulation of Cellular Systems, Heinrich and Schuster
Analysis of Biological Networks, Junker and Schreiber
Systems Biology, Palsson