About

- Instructor: Uri Keich

  - keich@cs, X5-7017
  - 4159 Upson Hall

- Time & space: Tue & Thu 2:55-4:10, Hollister 314

- Web pages

  - http://www.cs.cornell.edu/Courses/cs4520/2008fa/
  - https://cms3.csuglab.cornell.edu/

- Books on reserve:

  - Genomes - T.A. Brown (also accessible via pubmed)
  - An introduction to bioinformatics algorithms - Neil C. and Pavel A. Pevzner
  - Biological sequence analysis: probabilistic models of proteins and nucleic acids - Richard Durbin et al.
  - Statistical methods in bioinformatics : an introduction - Warren Ewens, Gregory Grant.

- Your course grade will be the arithmetic mean of your final grade and your normalized average homework score.

Syllabus

- Biological introduction

- Pairwise sequence alignment

    - Scoring matrices, dynamic programming

- Similarity search: BLAST

- Significance analysis of local alignment

- Multiple sequence alignment

- Phylogenetic trees

- Genome rearrangements: reversal distance

- Motif finding

    - Pattern and profile based finders
    - MITRA, Gibbs Sampler, Expectation Maximization
    - Significance analysis

- Mass spectrometry

- Gene arrays

- Gene finding