

CS 426  
Introduction to Computational Biology  
Instructors: Chew, Elber, Kedem, Keich

Lecture MW 10:10-11:00A HO 206      Section F 10:10-11:00A HO 206

Grade: 20% Homework (six assignments), 40% midterm, 40% final

Suggested reading: Setubal and Meidanis, "Introduction to computational molecular biology", PWS publishing company, Boston MA, 1997

Syllabus (by weeks)

1. Modern molecular biology: overview (Ron Elber) (Sept 1,3,5)
2. Alignments: dynamic programming, local and global (Klara Kedem) (Sept 8,10,12)
3. Approximate alignments – BLAST & FASTA (Klara Kedem) (Sept 15,17,19)
4. Multiple sequence alignments (Klara Kedem, Paul Chew) (Sept 22,24,26)
5. Protein structure I pairwise alignment (Paul Chew) (Sept 29, Oct 1,3)
6. Protein structure II protein folding (Ron Elber) (Oct 6,8,10)
7. Protein Structure III sequence design (Ron Elber) (Oct 15,17)
8. Protein Structure IV consensus structure (Paul Chew) (Oct 20,22,24) **Midterm**
9. Hidden Markov models (Ron Elber) (Oct 27,29,31)
10. Phylogenetic trees (Paul Chew) (Nov 3,5,7)
11. Genome rearrangements (Uri Keich) (Nov 10,12,14)
12. DNA chips (Paul Chew) (Nov 17,19,21)
13. Gene networks/physical mapping/whole cell simulations/suffix trees (Nov 24, Dec 1,3,5)