

BME280/CSE277: BIOINFORMATICS

Spring 2005

Course time/place: TTh 12:30pm-1:45pm, Torrey 301

Instructor: Ion Mandoiu (261 ITEB, Tel: x6-3784, E-mail: ion@enr.uconn.edu)

Office hours: MW 12:30-1:30pm or by appointment

Textbooks:

- Neil C. Jones and Pavel A. Pevzner, *An Introduction to Bioinformatics Algorithms*, MIT Press, 2004. Textbook website: <http://bioalgorithms.info/>. (Required)
- Dan Gusfield, *Algorithms on Strings, Trees, and Sequences*, Cambridge University Press, 1997. (Optional)

Course objectives: This course is an introduction to the computational principles driving current advances in bioinformatics. We will focus on fundamental algorithmic techniques in bioinformatics, including exhaustive search, greedy, dynamic programming, graph theoretical, and combinatorial pattern matching algorithms. Applications will include restriction mapping, motif finding, pairwise sequence alignment, gene prediction, DNA sequencing, evolutionary trees, genome rearrangements.

Grading policy: Grading will be based on homework assignments (40%), programming assignments (30%), and a final project (30%).

Homework Policies: Homeworks will be assigned approximately bi-weekly, and will be mostly algorithmic in nature. Homework assignments are due at the beginning of the lecture on the due date. There will be 2-3 individual programming assignments requiring you to implement full solutions in the programming language of your choice. The final projects will give you the opportunity to study some bioinformatics problem in more depth. Suitable final project topics include surveys of bioinformatics topics not covered in class, algorithm implementations, and empirical studies. Initial proposals and final project reports will be required. When appropriate, projects may be done in small groups.

WebCT: We have a WebCT website for the class. Check this site regularly for class materials, grades, changes in class schedule, and other announcements.

Collaboration and Academic Integrity: Discussing homework problems and programming assignments with other students is encouraged; you are particularly encouraged to use the discussion tool on the WebCT site for course related discussions. However, submitted solutions to homework and programming assignments must be your own work. Violations will be reviewed and sanctioned according to the University Policy on Academic Integrity.