

COURSE ANNOUNCEMENT FOR WINTER 2012

CSE/BIMM/BENG 181: Molecular Sequence Analysis

Instructors: Pavel Pevzner (ppezvner@ucsd.edu)

Pavel Pevzner: Phone: (858) 822-4365, <http://www-cse.ucsd.edu/users/ppezvner/>

Time: M/W 12:30 - 13:50

Place: EBU3B 2154

Office hours: Tuesday 2-5 EBU3b 4236

TA: Stefano Bonissone (sbonisso@cs.ucsd.edu) and Eric Scott (escott@ucsd.edu)

Discussion section: W 10:00-10:50 HSS 2321

Stefano's office hours: Tuesday 2:00-3:00p in CSE 4258 or by appointments

Eric's office hours: Friday 1:00-2:00p in CSE 4258 or by appointments

Class website: TBA

The course will concentrate on applications of algorithms to biological problems. In addition to providing a background in bioinformatics the course will emphasize the recent advances in the area. The computational techniques will include exhaustive search, branch and bound algorithms, greedy algorithms, dynamic programming, divide and conquer algorithms, combinatorial pattern matching, graph algorithms, clustering algorithms, randomized algorithms, machine learning, etc. The course will cover the following topics: DNA and protein sequence comparison, DNA arrays and expression analysis, comparative genomics, repeat analysis, gene finding, pattern discovery in DNA, DNA sequencing, molecular evolution and computational proteomics.

The course will be self-contained but it implicitly assumes some mathematical and algorithmic culture. As an experiment we allow students *without* CSE 101/Math 188 and BIMM 100/Chem 114 D to register. We do not strictly enforce the requirements but CSE 100 or Math 176 are strongly recommended for taking this course.

Grading: One midterm on February 13, Monday, (25% of the score), the final examination (35% of the score), and 5 homeworks (35% of the score). No late homework will be accepted. If for whatever reason you cannot deliver the homework/attend the quiz on the due date, you should report it at least a day before the due date. 30% of the maximal number of points is deducted for every day or part of a day that an assignment is handed in too late.

Textbook: N.C. Jones and P.A. Pevzner. Introduction to Bioinformatics Algorithms, The MIT Press, 2004. All students are encouraged to E.mail the instructors if the book material is unclear, contains errors, difficult to read, or if you have any questions about the book material or suggestions on how to improve it.

Discussion sections may include material that is not covered in lectures. All material

covered in lecture, in the assigned reading, in the homework, and in discussion sections may appear in the exams.

Academic honesty. Cheating is not only dishonest, but also self-destructive. Plagiarism is a very serious violation. All the writing in your homeworks, quizzes, and exams must be your own work. You may not copy sentences or paragraphs from books, web pages, or any other source. If you quote anything written by anyone else, you must indicate very clearly that it is a quotation, and provide a full citation. Each student is responsible for knowing and abiding by the UCSD Policy on Integrity of Scholarship. A student violating this policy will be reported to the appropriate dean for administrative action, such as probation or expulsion from UCSD, in addition to any academic penalty imposed by the instructors in the course.