

COURSE ANNOUNCEMENT FOR WINTER 2007

BENG 202/CSE 282: Biological Sequence and Structure: Algorithms and Analysis

Instructors: Trey Ideker (BENG) and Pavel Pevzner (CSE)

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Teaching Assistants: Nitin Gupta (ngupta@ucsd.edu) and Julio Ng (jung@ucsd.edu)

Time: TuTh 3:30 - 4:50, Place: Powell-Focht Bioengineering Hall 161 (PFBH161)

Office hours: TI: (Tuesday 1-3) PP: (Friday 10-12), NG: (Thursday 2-3 @ EBU3B 4250), JN: (Monday 4-5 @ EBU3B 4256)

Class Website: <http://bioinf.ucsd.edu/~jung/beng202/>

Textbooks: There is no required book for this course. We suggest N.C. Jones and P.A. Pevzner. Introduction to Bioinformatics Algorithms. The MIT Press. 2004 as a recommended book for this course.

For those who have not taken biology we recommend

Larry Gonick and Mark Wheelis. The cartoon guide to genetics. Harperperennial Library, 1991

Course website: <http://bioinf.ucsd.edu/%7Engupta/beng202>

The course will be rather self-contained but it implicitly assumes some minimal prior background in biology, some algorithmic culture (e.g., an undergraduate course in algorithms), and some programming skills.

Grading: *final (30% of the score), one course project (40% of the score), and 3-4 homeworks (30% of the score overall). Homeworks are assumed to be the result of individual work. If for whatever reason you cannot deliver the homework 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.*

Class Project. The suggested class project will be distributed at the first meeting. The students will be guided through various stages of bioinformatics research: formulating the problem, designing the research plan, studying relevant literature, responding to the criticism of the reviewers, preparing the presentation and the paper, etc.

We assume that students will form teams of two to work on the project but we do not discourage students to work on the project on their own if they choose so. Every team should work on the project individually (without borrowing the developed software/algorithms from other teams) since the final report is assumed to be the result of the team work.

It is important that you start working on the project as soon as possible and to file the progress reports reflecting your work on the project according to the following schedule. It is important to complete the project on time (to allow time for presentations) and the schedule below ensures the timely completion. Deviations from this schedule will negatively affect your grade.

- Tuesday, Jan, 16. Read the recent research papers relevant to the project and make sure that you understand all aspects of the project. The description of the project has some incorrect statements - make sure that you critically evaluate the description and find these erroneous and ambiguous statements. Send an E.mail to TA specifying any questions you may have about the project and revealing the problems with the description of the project.
- Tuesday, Jan, 23. Send E.mail with the corrected and extended description of the project specifying the detailed plan of your work in the next 8 weeks. The E.mail should specify your research plan, algorithmic challenges, and software implementation efforts.
- Friday, Jan, 26. Meet the TA/instructor to discuss your plan for the project. You may want to sign up for a 20-30 minute meeting to avoid waiting in line. Prior to the meeting please prepare a list of a few milestones with deadlines for achieving each milestone.
- Thursday, February, 1. Send a 1-page E.mail to the TA with the summary of the progress and the preliminary results in the first 4 weeks of class.
- Monday, February 5. TA sends his critical comments back to the authors.
- Thursday, February, 15. Send a 3-page E.mail to the TA outlining the first algorithmic results and the state of software implementation efforts. This E.mail should contain the response to the reviewer's concerns. Sign up for a meeting to discuss progress.
- Monday, February, 19. TA sends his critical comments back to the authors.
- Thursday, March 1. The deadline for a 5-page intermediate report. You are expected to meet the instructors and TAs to make a short powerpoint presentation (based on the 5-page report) describing your project, the remaining challenges you are facing, and the preliminary results.
- Thursday, March 8. The deadline for the final report and the powerpoint presentation. Sign up for a meeting to discuss your progress. The presentations of the class projects start (in class).

Your research project and presentation will be graded according to the following criteria:

- ability to formulate a computational problem.
- ability to review the previous research in the area.
- ability to write a self-contained and concise abstract and introduction.
- ability to propose efficient algorithmic solutions
- sensible implementation decisions
- sensible benchmarking design
- clear description of results in progress report
- clear presentation of results in the class, appropriate organization, and presentation style
- insightful discussion of further directions
- complete bibliographic review