

Math 578a (Spring 2016) -- Section 1

Lecturer: Ting Chen

Lecture Hours: 11-12:20pm, Tue and Thu, RRI 301

Office Hours: Friday 8-10am, RRI 408H, Phone: 213-740-2415, email: tingchen@usc.edu.

Grading: This unit counts 33% of the final grade. The unit grade consists of 16% homework assignments and 17% midterm. One day delay of a programming/homework assignment will get 25% deduction.

Book: "Algorithms on Strings, Trees and Sequences" by Gusfield (not required)

Schedule: (Jan 11 – Feb 12, 2015)

1. Algorithm review and pairwise sequence alignment
2. Pairwise sequence alignment I (local)
Programming assignment #1
3. Pairwise sequence alignment II (linear space and affine gap)
4. Pairwise sequence alignment III (dissimilarity dependent algorithm)
Due - Assignment #1
Programming assignment #2
5. Multiple alignments I (3 seqs and 2 approximation)
6. Multiple alignments II (progressive)
Due - Assignment #2
Programming assignment #3
7. Sequence assembly I (shortest superstring)
8. Sequence assembly II (coverage and overlap-layout-consensus)
Due – Assignment #3
9. Sequence assembly III (De Bruijn graph)
10. Midterm

Note: Each student should work on the programming and homework assignment independently. Each student should (1) email tingchen@usc.edu a report consisting of the idea of implementation, the summary, the code, multiple non-trivial test examples, and sometimes the running time plot, and (2) email tingchen@usc.edu the original code and examples for test. If there is evidence that the code is similar to other codes that are either from other students or internet resources, the grade for this course will be automatically F.

Statement for Students with Disabilities: Any student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Please be sure the letter is delivered to me (or to TA) as early in the semester as possible. DSP is located in STU 301 and is open 8:30 a.m.–5:00 p.m., Monday through Friday. The phone number for DSP is (213) 740-0776.

Statement on Academic Integrity: USC seeks to maintain an optimal learning environment. General principles of academic honesty include the concept of respect for the intellectual property of others, the expectation that individual work will be submitted unless otherwise allowed by an instructor, and the obligations both to protect one's own academic work from misuse by others as well as to avoid using another's work as one's own. All students are expected to understand and abide by these principles. *Scampus*, the Student Guidebook, contains the Student Conduct Code in Section 11.00, while the recommended sanctions are located in Appendix A. Students will be referred to the Office of Student Judicial Affairs and Community Standards for further review, should there be any suspicion of academic dishonesty. The Review process can be found at:

<http://www.usc.edu/student-affairs/SJACS/>