CSC 810 Analysis of Algorithms II-Fall 2006
Tu 7:00 – 10:00 p.m., TH 331

There will be a Blackboard course web site at: http://online.sfsu.edu/. The site will include announcements, discussions, and explanations of some course material.

Instructor: Robert E. Wall
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Hours: MW1:00-2:30
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Description :

Review major design strategies. Theory of NP-Completeness. Approximation algorithms. On-line algorithms. Parallel and Distributed algorithms. Algorithms for specific areas of interest.

Prerequisites: Pass GET or enrolled in SCI 614, B or better in CSC 510 (or equivalent)

Grading:
There will be one midterm exam and one final, as well as in-class presentations by students of assigned homework problems and reports on assigned topics from the literature.

The exams and reports will have the following weights:
Midterm 100 pts; Final Exam 200 pts; Reports 50 points; Total 350 pts
Grading Scale:
Total >= 85% A-to A; 65%-84% B-to B+ ; 50%-64% C-to C+ ; >= 55%; 0%-49% D/E/F.
Note: I do look favorably at improvement on the final and can adjust a grade slightly for an excellent score on the final exam.

Exams: Midterm – Tuesday, October 17; Final Exam – Tuesday, December 19.

Textbook: *Foundations of Algorithms Using C++ Pseudocode*, 3rd Edition, by R. Neapolitan and K. Naimipour; Jones and Bartlett (2004).

Additional reference books:
Introduction to Algorithms (2nd ed.) Cormen, Leiserson, Rivest and Stein; McGraw-Hill (2001).
Computer Algorithms (3rd ed.) Baase and Van Gelder; Addison Wesley Longman (2000).
Computer Algorithms, Horowitz, Sahni and Rajasekaran; Computer Science Press (1998).
Computers and Intractability; A Guide to the Theory of NP-Completeness, Garey and Johnson; WH Freeman (1979).

Withdrawals:
I follow University policies with regard to withdrawal from a course, i.e., drop and withdrawal from courses are student responsibilities.

Missed Exams:
Generally, there will be no make-up exams and no incomplete grades given. If you miss an exam, you must notify the instructor before the exam or, if physically impossible, soon after. If any of the scheduled exam dates are in conflict with your religious observances, you must notify your instructor, in writing, during the first two weeks of the semester. If you have an acceptable, documented excuse, you may be given a make-up exam or be given the average score of other exams at the discretion of the instructor.

Topics	Homework Assignments
Chapter 1: Review all	p. 42, Exercises 3, 6, 7, 10, 13, 14, 21, 30, 34
Chapter 2: Review: Binary Search Mergesort and Quicksort Read: Strassen's Matrix Multiplication Arithmetic with Large Numbers Determining Thresholds	p. 83, 4, 6, 13, 21, 22, 30-33, 36, 38, 40
Chapter 3: Review Binomial Coefficient Floyd's Algorithm Traveling Salesperson Problem Read: Chained Matrix Multiplication Optimal Binary Search Trees	p. 133, 4, 5, 6, 9, 10, 12, 15, 18, 19, 20, 21, 23, 26, 29-34
Chapter 4: Review Prim's and Kruskal's Algorithms for MST's Dijkstra's Algorithm Knapsack Problem Read: Scheduling Huffman Code	p. 181, 1, 2, 5, 6, 11, 14, 17, 20, 24-27, 30. 34. 35, 40, 41
Chapter 5: Review n-Queens Problem Backtracking for 0-1 Knapsack Problem Read: Monte Carlo Algorithm Sum-of-Subsets Problem Graph Coloring Hamiltonian Circuits	to be determined
Chapter 6: Review Branch-and-Bound Read: Abductive Inference (Diagnosis)	to be determined
Chapter 7: Intro. to Computational Complexity: the Sorting Problem	
Chapter 8: More Computational Complexity: the Searching Problem	
Chapter 9: Computational Complexity and Intractability: An Introduction to the Theory of NP	
Chapter 11: Introduction to Parallel Algorithms	
Guest Lectures and Student Presentations on Selected Topics	