CSCE 411 Design and Analysis of Algorithms

Lecture Time and Classroom
Time            TR 5:30-6:45 pm
Location        BLOC 117

Instructor
Name            Sangjun Lee
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Office Hours    TW 3:00-4:00 pm or by appointment
Office          HRBB 509A

Textbook and Course Webpage
Textbook        Introduction to Algorithms (3rd Edition) by Cormen, Leiserson, Rivest, and Stein
Webpage         http://students.cse.tamu.edu/sjlee/index.html

Course Description
In this undergraduate algorithms course, we study computer algorithms for a number of problems including design paradigms of algorithms, the analysis of time and space requirements of algorithms, and the correctness of algorithms. Some topics about NP-completeness and undecidability are covered.

Learning Outcomes
By taking this course, students are expected to
- understand fundamental algorithms and algorithm design techniques
- be able to prove correctness of a given algorithm
- be able to analyze running time and space complexity of a given algorithm
- be able to decide which algorithm is more efficient
- be prepared to design efficient algorithms for new applications

Grading Policies
Homeworks       35%
2 Midterms       40% (20% each)
Final            25%

Total            100%

The letter grades will be A (90-100%), B (80-89%), C(70-79%), D (60-69%), or F (0-59%).

Course Schedule
The two midterms are scheduled tentatively to be held on Feb. 25 and Mar. 31 in class.
The final exam is scheduled to be held on May 10, 3:30-5:30 pm in the classroom.

Week 1 (Jan. 19, 21)  Introduction, Asymptotic Notation
Week 2 (Jan. 26, 28)  Divide and Conquer
Week 3 (Feb. 2, 4)  Dynamic Programming
Week 4 (Feb. 9, 11)  Greedy Algorithms
Week 5 (Feb. 16, 18)  Amortized Analysis
Week 6 (Feb. 23, 25)  Review, 1st Midterm
Week 7 (Mar. 1, 3)  Graph Algorithms
Week 8 (Mar. 8, 10)  Graph Algorithms
Week 9 (Mar. 15, 17)  No class (Spring break)
Week 10 (Mar. 22, 24)  Linear Programming
Week 11 (Mar. 29, 31)  Review, 2nd Midterm
Week 12 (Apr. 5, 7)  Randomized Algorithms
Week 13 (Apr. 12, 14)  NP-Completeness
Week 14 (Apr. 19, 21)  Approximation Algorithms
Week 15 (Apr. 26, 28)  Undecidability, Review

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