Course Syllabus

CS 4349.HON Advanced Algorithm Design and Analysis; Fall 2015; MW 10:00-11:15 AM; ECSS 2.311; http://www.utdallas.edu/~rbk/teach/2015f/4349.html

Professor Contact Information
Balaji Raghavachari; (972) 883-2136; rbk@utdallas.edu; ECSS 4.225;
Office hours: Mon/Wed 11:15 AM - 12:15 PM.

Course Pre-requisites, Co-requisites, and/or Other Restrictions
CS 3345 or equivalent (Data structures and algorithms): Analysis of algorithms. Stacks, queues, and trees, including B-trees. Heaps, hashing, and advanced sorting techniques. Disjoint sets and graphs.

Course Description
Topics: Asymptotic analysis, recurrences, and graph algorithms. Algorithm design techniques such as greedy method, dynamic programming, and divide-and-conquer. Issues from computational complexity.

Student Learning Objectives/Outcomes
Study efficient algorithms for a number of fundamental problems, learn techniques for designing algorithms, prove correctness and analyze running times.

1. Ability to use asymptotic notations, solve recurrences, perform algorithm analysis
2. Ability to design, analyze, and prove correctness of algorithms based on divide and conquer
3. Ability to design, analyze, and prove correctness of algorithms based on greedy techniques
4. Ability to design, analyze, and prove correctness of algorithms based on dynamic programming
5. Ability to design, analyze, and prove correctness of graph algorithms

Required Textbooks and Materials

Assignments & Academic Calendar
Mid-term Exam: 10:00-11:15 AM, Oct 7 (Wed); Final exam as scheduled by the registrar (Dec 11-17).
Regular assignments (almost every Wednesday). One or more programming projects.

Grading Policy:
A grade: 90% or more in homeworks and projects, 80% or more in exams, 3 or more excellence credits
B grade: 80% or more in homeworks and projects, 70% or more in exams
C grade: 60% or more in homeworks, projects, and exams
Excellence credits awarded for excellent work in projects, exams and some assignments.

Course & Instructor Policies
• Assignments are due in class on the specified date. Turn in what is completed by the deadline for partial credit. No late submissions will be accepted. All submissions must be your own work. Solutions copied from the internet, instructor's manual, etc. will be given zero credit.
• Assignments can be written or typed, and submitted in class or on elearning. Projects must be submitted on elearning, as zip or rar archives, containing code and reports. All submissions on elearning can be revised before the deadline.
• Regular class attendance and participation is expected and is the responsibility of each individual. There is a strong correlation between regular class attendance and good performance. If a student should elect not to attend a class, (s)he is responsible for any handouts, announcements, reading material and contents of missed lectures.

See also UTD's policies at http://go.utdallas.edu/syllabus-policies