Course Syllabus

CS 6363.006 Design and analysis of Computer Algorithms; Fall 2016; Tue/Thu 10:00-11:15 AM; ECSS 2.412;
http://www.utdallas.edu/~rbk/teach/2016f/alg.html

Professor Contact Information
Balaji Raghavachari; (972) 883-2136; rbk@utdallas.edu; ECSS 4.225;
Office hours: Tue/Thu 11:20-11:50 AM, 2:20-3:00 PM.

Course Pre-requisites, Co-requisites, and/or Other Restrictions
CS 5343 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: Algorithm design techniques: divide-and-conquer, dynamic programming, greedy algorithms; Sorting and searching; Graph algorithms; Computational complexity, lower bounds, NP-Completeness. Proofs of correctness.

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 understand asymptotic notations, recurrences, algorithm analysis
2. Ability to understand divide and conquer algorithms
3. Ability to understand greedy algorithms
4. Ability to understand dynamic programming algorithms
5. Ability to understand graph algorithms, flow networks
6. Ability to understand NP-Completeness

Required Textbooks and Materials
Introduction to Algorithms, 3rd ed., Cormen, Leiserson, Rivest, and Stein. MIT Press.

Assignments & Academic Calendar
Mid-term Exams [10:00-11:15 AM]: Sep 22 (Thu), Oct 27 (Thu) ;   Final exam [11:00 AM-1:00 PM]: Dec 15 (Thu).

Grading Policy:
A grade: 90% or more in homeworks and projects, 85% 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 50% in exams
Excellence credits (ec) are awarded for excellent work in exams.
Plus/Minus grades will be decided by the instructor (e.g., [92% in hw/proj, 81% in exams, 2.1 ec] may get an A-).

Course & Instructor Policies
- Homework assignments and programming projects can be done in groups. Form groups of 4 students each. Assignments can be written or typed, and submitted in class or on elearning. No late submissions will be accepted. Solutions copied from other students, internet, instructor's manual, etc. will be given zero credit and referred to the Dean of Students for disciplinary action. Projects must be submitted on elearning, as zip or rar archives. All submissions on elearning can be revised before the deadline.
- CS department policy: one grade reduction for missing 3 classes (without prior permission from instructor), and a grade of "F" for missing 4 classes without proper excuse.
- **For each class missed, an extra homework assignment must be submitted within the next 2 classes.**
- 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