Course Syllabus

CS 3345.004 Data structures and algorithm analysis; Fall 2018; Mon/Wed 8:30-9:45 AM; ECSS 2.410
Class URL: https://www.utdallas.edu/~rbk/teach/2018/3345.html

Professor Contact Information

Balaji Raghavachari; (972) 883-2136; rbk@utdallas.edu; ECSS 4.225
Office hours: Mon-Thu 10:00-11:30 AM, or by appointment.

Course Prerequisites, Corequisites, and/or Other Restrictions

Discrete Mathematics I (CS 2305), Computer Science II (CS 2336), Probability and Statistics (CS 3341), or equivalent.

Course Description

Analysis of algorithms including time complexity and Big-O notation. Analysis of stacks, queues, trees, heaps, hashing, and advanced sorting techniques. Disjoint sets and graphs. Course emphasizes design and implementation.

Student Learning Objectives/Outcomes

1. Ability to use/analyze asymptotic notations, recurrences, algorithm analysis
2. Ability to use/analyze lists, stacks, queues, hashing, priority queues
3. Ability to use/analyze binary search trees, balanced binary search trees
4. Ability to use/analyze graphs, depth-first search, topological ordering
5. Ability to use/analyze breadth-first search, Dijkstra's algorithm
6. Ability to use/analyze algorithms of Prim and Kruskal, disjoint-set Union-Find problem

Required Textbooks and Materials

Data structures and algorithm analysis, 3rd ed., Mark Allen Weiss. Addison-Wesley (Pearson).

Assignments & Academic Calendar

Homework assignments and programming projects will be assigned almost every week.
Quiz 1: **Sep 19** (Wed);   Mid-term Exam: **Oct 10** (Wed);   Quiz 2: **Nov 14** (Wed);   Final exam: to be announced.

Grading Policy:

Cut-off scores for grades: (1) T: theory (exams 90%, homeworks 10%), (2) P: practice (programming projects):

A+:	90%T, 90%P	**A:**	85%T, 90%P	**A-:**	80%T, 90%P
B+:	75%T, 80%P	**B:**	70%T, 80%P	**B-:**	65%T, 80%P
C+:	65%T, 70%P	**C:**	60%T, 70%P	**C-:**	55%T, 70%P
D+:	55%T, 60%P	**D:**	50%T, 60%P	**D-:**	40%T, 60%P

Course & Instructor Policies

- Attendance policy: one grade reduction for missing 3 classes (without valid excuse and prior permission from instructor), and a grade of "F" for missing 5 classes, without proper excuse. Send email to instructor prior to class, with proper excuse, to avoid being marked absent.
- 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.
- No browsing/email/gaming/social networking is allowed during the lectures. Students may not use phones during class. You must get instructor's approval to use computers in class.
- The following are not allowed in class: audio or video recordings, photos.
- 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. You are responsible for any handouts, announcements, reading material and contents of lectures that you missed.

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