Course Syllabus
CS 5V81.001 Implementation of data structures & algorithms; Fall 2018; Tue/Thu 8:30-9:45 AM; ECSS 2.410
URL: http://www.utdallas.edu/~rbk/teach/2018(idsa.html

Professor Contact Information
Balaji Raghavachari; (972) 883-2136; rbk@utdallas.edu; ECSS 4.225; Office hours: Mon-Thu 10:00-11:30 AM.

Course Prerequisites, Corequisites, and/or Other Restrictions
CS 5343 or equivalent (Data structures and algorithms): Analysis of algorithms. Stacks, queues, and trees. Heaps, hashing, and advanced sorting techniques. Disjoint sets and graphs. Knowledge of Java or C++.

Course Description
This course emphasizes a practical approach to algorithms with many programming projects. Topics: Implementation of data structures (Lists, Stacks, Queues, Trees, Balanced Search Trees, Hashing, Graphs); Implementation of algorithms (Sorting and searching, Recursion, Graph algorithms). Projects:

- Short: Empirical studies, Do-and-learn projects. One project (almost) every week. Groups of 2 students each.
- Long: Implementation of data structures and algorithms (about 4-5). Groups of 3-4 students each.
- Optional: Individual (no collaboration).

Student Learning Objectives/Outcomes
Design data structures for given situations, study efficient algorithms for a number of practical problems, learn techniques for designing algorithms, and study efficient implementation of data structures. At the end of the course, students are expected to have the following abilities: (1) Use/implement data structures, (2) Use/implement algorithms, (3) Evaluate performance of data structures implementations.

Required Textbooks and Materials
No text book is required. Reference: Any book on DS&A such as Cormen et al's “Introduction to Algorithms.”

Assignments & Academic Calendar
Test: Thu, Nov 29. There is no final exam during the exam week (Dec 11-Dec 17).

Grading Policy: Cut-off scores to earn grade (P+T+E): projects (P), test (T), excellence credits (E):

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<th>Grade</th>
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Course & Instructor Policies
- Projects must be submitted online by their deadlines. No submissions will be accepted after the final deadline for any project. All submissions must be your own work. Do not seek outside help in implementing projects.
- Students are expected to participate in discussions (in class and on elearning).
- Best projects will be assigned excellence credits, between 0 and 1 (long projects only).
- 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.
- 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.
- Usage of electronic devices (phones, tablets, computers), audio/video recordings during lectures are not allowed.

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

Ver 1.0: Aug 14, 2018