Course Information

Welcome to CS253.001, Data Structures and Algorithms (Section 001). We meet 2:30pm to 3:45pm Tuesdays and Thursdays in N302 (no lab meetings). One of those meetings will be a midterm exam (tentatively Tuesday March 3), and the remaining meetings will be lectures. We will have a final exam at the time set by the registrar, 3:00pm–5:30pm on Tuesday May 5.

This course continues CS171, where you should have already seen Java (inheritance and interfaces), some elementary data structures (stack, queue, linked list, binary tree, hash table), sorting (mergesort, quicksort), and some graphs (adjacency lists, BFS or DFS). I’ll probably survey the class background at our first meeting.

Our other prerequisite is CS224, for mathematical background (big-Oh, probability, induction). In this course we study further data structures and algorithms, beyond CS171. Compared to CS171, our approach is more analytic, but still with some coding. In CS326 you’ll see more advanced material, with more analysis and very little coding.

Online Support: Most course resources will be available via our public page:

http://cs.emory.edu/~cs253001/

In particular there should be a subdirectory with files relevant to each lecture. This will include some notes, slides, and whiteboard images. On CS lab machines, the same materials are in directory /home/cs253001/share/. We will also use the Emory Canvas service for announcements, discussions, the submission of homework, and grading.

Book: Our main textbook is Data Structures and Algorithms (6th edition) by Goodrich, Tamassia, and Goldwasser. We’ll be covering material from (roughly) Chapters 8–14.

You should have a copy. We may also use some material from Algorithms (4th edition) by Sedgewick and Wayne, but you won’t need a personal copy of that.

Staff: Your instructor (writing this!) is Michelangelo Grigni. You may contact me via Canvas, by e-mail as mgrigni@emory.edu or in my office (W426). My office hours are posted on the web. We should also have a graduate TA to help with grading and programming issues.

Graded Work: There will be one midterm exam (noted above), and a final exam. These exams will count for 45% of your course grade (20% + 25%). Each exam will be curved so that the median mark is at least a B (85 of 100). We will also have a series of homework assignments, with overlapping written assignments and programming assignments. These assignments will be weighted
equally, and overall count for 50% of your grade. Any other graded activities (discussion, etc) will be summarized as a 5% participation mark. If you finish your work on time, and always submit something, I think you’ll find it easier to get an A on the assignments than on the exams.

I reserve the right to adjust the above grade weighting scheme, but any such changes will be announced via Canvas.

**Syllabus:** Our main topics are mostly in the textbook. They are (tentatively): a review of binary trees (Chapter 8), a review of binary heaps and heapsort (Chapter 9), balanced binary search trees including at least AVL (Chapter 11), sorting bounds and selection (Chapter 12), text algorithms (Chapter 13), and graph algorithms (Chapter 14). We may not cover all the material of these Chapters, and we may add a bit more material as time permits. In particular we’ll include the dynamic programming examples of Section 13.5, the greedy algorithms of Sections 13.4 and 14.7, and the union-find data structure of 14.7.

**Policies:** It is your responsibility to know what has been covered in class, to read along in the book, to turn in your work, and to attend the exams. Having missed a class is not a sufficient excuse for late work. You need an OUE dean’s note to makeup a missed examination.

Unless I instruct you otherwise, you should have no outside help on homeworks. You should not share solutions with other students, nor seek solutions from other sources. On the other hand, the following kinds of collaboration are allowed: interpreting the statement of a problem, understanding an error message, learning features of a language or software tools, reviewing the textbook and course notes. If you are in doubt about what is allowed, ask your instructor.

Your work for this class is governed by the Emory Honor Code and the SPCA (Statement of Policy on Computer Assignments). In particular, this means you should take care to protect the confidentiality of your homework files. Apparent honor code violations will be referred to the Emory Honor Council. We may use an automated system to help detect plagiarism.

See the OUE Addendum for further information on college deadlines and policies.

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