

CS 363 Outline for Quiz 1 Spring 2018

From text 2.1-4, 3.1(selection sort), 3.2 (sequential search), 3.4(knapsack), 4 intro, 4.1, 4.4 (Binary Search), my notes 00 – 03, 04A: basically through HW2

Use basic math formulas: geometric series, logs, sums bounded by integrals
Remember plain Appendix A allowed as reference, not counted in 2 sides of notes

Algorithm analysis

Worst case analysis

Best case analysis

Average case analysis in simple, equally likely situations

Idea of lower bounds applying to all algorithms in a class

Growth order of functions:

sequence of orders for common functions

simplifying order expressions

big and small Oh, theta, and omega

Searching

linear, binary

Recurrence relations:

Master theorem! Be able to classify recurrence relations and use it!

Creating recurrence relations $T(n) = f(n) + \text{terms involving } T$

Distinguish nonrecursive term $f(n)$ from recursive terms and from $T(n)$!

Formulas for $T(n)$ as sum if $T(n) = T(n-a) + f(n)$

I plan to make a link to the quiz available Wednesday afternoon, February 14, after class. The heading should look similar to this:

Algorithms Take Home Quiz 1 Due Fri. Feb 16, 2018 by 11:55PM in Sakai

You may use previously prepared notes on two sides of 8.5 x 11 inch paper, plus a copy of the text's Appendix A. You do not need to do the quiz all at one sitting, but once you look at it, finish it before discussing algorithms class or looking at an algorithm text or reference or your notes. I hope it takes around an hour of active work, but if you need more time, you may take **up to three hours**. Calculators are not allowed. You are encouraged to use a computer only as a word processor for producing the text. If you want to do part on paper, reference it in the electronic text part, and turn in clear photos/scans of the paper parts. Order problems in the numerical order in the quiz. Do not use a computer for algorithms reference or for running code.

I have read and followed the instructions above, and worked alone, using only the allowed notes:

Signature: _____ **Name printed** _____

Approximate number of minutes working on the quiz _____