

Exam 1 Review



Computer Science Department
University of Central Florida

COP 3502 – Computer Science I



Exam 1 Review

- Outline of Material Covered:
 - I. Arrays, Pointers, Strings, Files, Structs
 - Manipulation of array elements
 - Manipulation of struct components
 - Use of '.' vs '->'
 - Use of strings
 - strcmp, strlen, strcpy
 - Use of files (fopen, fscanf)
 - Dynamic memory allocation for arrays and for structs
 - malloc, calloc, and realloc



Exam 1 Review

■ Outline of Material Covered:

II. Linked Lists

- Traversing a linked lists
 - Printing a list
 - Modifying list contents
- How to allocate a node dynamically
- Inserting elements anywhere in the list
- Deleting elements anywhere in the list
- You can be SURE to have at least one CODING question on linked lists
 - Everything is fair game including insert/delete.
 - Know the code!



Exam 1 Review

■ Outline of Material Covered:

III. Recursion

- Fibonacci, Factorial, Binary Search
- Writing recursive functions
- Tracing through recursive functions
- Towers of Hanoi
- Permutation
- Reversing a string
- Base conversion
 - Convert from some other base to base 10
 - Convert from base 10 to some other base
 - ***Convert from ANY base to ANY other base***



Exam 1 Review

■ Outline of Material Covered:

II. Algorithm Analysis

- Big-O definition and finding the c value as shown in class
 - Understanding the various orders and what they mean
- “Practical” Problems such as those on the slides and also during the lab
- Analyzing code fragments and determining Big-O
- Solving summations
- Putting summations in their closed form (in terms of n)
- Analyzing code fragments and using summations to determine the Big-O



Exam 1 Review

- How to study:
 - KNOW and UNDERSTAND the notes
 - Make sure you are 100% on the notes
 - Make sure you are 100% on all the lab questions and their respective solutions
 - Don't waste time memorizing algorithms
 - Understand how they work and WHY they work
 - And be prepared to come up with your own
 - Look at Arup's Archive of tests
 - Practice some of the problems (ones that are applicable)
 - <http://www.cs.ucf.edu/~dmarino/ucf/transparency/cop3502/exam/>



Exam 1 Review

- Types of Questions:
 - Some short answer questions:
 - Tracing through code
 - Questions on an algorithm discussed in class
 - Small questions on code
 - Solve summations
 - Solve the “Practical” Problems
 - etc.
 - Writing Functions:
 - You will have to write functions
 - Almost guaranteed to be some recursive ones



Exam 1 Review

■ Exam Aids:

- You may use one 8-1/2"x11" sheet of paper
 - FRONT AND BACK
 - Typed or written doesn't matter
 - I don't care what you put on it

■ What you CANNOT use:

- Any electronic device:
 - Calculator, phone, ipad, you get the idea
- If you are seen holding ANY electronic device, you will get 10 points off immediately! If you were cheating with that device, then the consequences are, of course, far worse.



Exam 1 Review

- So what is covered?
 - EVERYTHING until now
 - Even if I didn't "cover" it during this review
 - Anything and everything that was taught or shown in class or in the labs is fair game.

■ Questions:

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