Department of Electrical Engineering & Computer Science
COP 3053  Computer Science II
Fall 2014

Lecturer: Rick Leinecker
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Lecture Meetings: Monday and Wednesday 4:30 – 5:45 PM, in HPA1 0119
Office Hours: Monday 1:00 – 4:00 PM in HEC 219
Tuesday 1:00 – 4:00 PM in HEC 219
Thursday 1:00 – 4:00 PM in HEC 219

TA: Aidean Sharghi (aidean.sharghi@knights.ucf.edu)

Prerequisites: COP 3530C

Required textbook:

The text will be supplemented with additional notes that will be provided for you via the course web site: http://cop3503.rickleinecker.com.

Course Topics:
This course explores specific algorithmic techniques in more detail than CS1 and applies these to some new problems not explored in CS1. Also, more technical algorithmic analysis will be done in order to verify the efficiency of the algorithms discussed. Finally, a couple new data structures will be introduced. It includes algorithms such as growth, recurrences, sets, sorting, data structures, greedy algorithms, and selected mathematical algorithms such as Fourier Transforms.

Proposed Schedule:
8/18/2014 – Introduction and Chapter 1
8/20/2014 – Chapters 2 and 3 – Growth of Functions; Summations
8/25/2014 – Chapter 4 – Recurrences
8/27/2014 – Chapter 5 – Sets
9/3/2014 – Chapter 7 – Heapsort
9/8/2014 – Chapter 8 – Quicksort
9/10/2014 – Chapter 9 – Sorting in Linear Time
9/15/2014 – Chapter 10 – Median and Order Statistics
9/17/2014 – Test on chapters 1-10
9/22/2014 – Chapter 11 – Elementary Data Structures
9/24/2014 – Chapter 12 – Hash Tables
9/29/2014 – Chapter 13 – Binary Search Trees
10/1/2014 – Chapter 14 – Red-Black Trees
10/6/2014 – Chapter 15 – Augmenting Data Structures
10/8/2014 – Chapter 16 – Dynamic Programming
10/13/2014 – Chapter 17 – Greedy Algorithms
10/15/2014 – Chapter 18 – Amortized Analysis

**10/20/2014 – Test Chapters 11-18**

10/22/2014 – Chapter 19 – B Trees
10/27/2014 – Chapters 20-21 – Binomial Heaps; Fibonacci Heaps
10/29/2014 – Chapter 22 – Data Structures for Disjoint Sets
11/3/2014 – Chapter 23 – Elementary Graph Algorithms
11/5/2014 – Chapter 24-25 – Minimum Spanning Trees; Single-Source Shortest Paths
11/10/2014 – Chapter 26 – All-Pairs Shortest Paths
11/12/2014 – Chapter 27 – Maximum Flow

**11/17/2014 – Test Chapters 19-27**

11/19/2014 – Chapter 28 – Sorting Networks
11/24/2014 – Chapter 29 – Arithmetic Circuits
11/26/2014 – Chapter 32 – Polynomials and the FFT
12/1/2014 – Chapter 34 – String Matching

**12/8/2014 (4:00 PM – 6:50 PM) – Comprehensive Final Exam**

Grading will be as follows:  
Test 1 - 15%  
Test 2 - 20%  
Test 3 - 25%  
Final Exam - 30%  
Collected Assignments - 10%

**Important Dates:**

August 18, 2014 – Classes Begin  
September 1, 2014 – Labor Day Holiday  
September 11, 2014 – First Test Covering Chapters 1-10  
October 20, 2014 – Second Test Covering Chapters 11-18  
October 27, 2014 – Withdrawal Deadline  
November 11, 2014 – Veteran’s Day Holiday  
November 17, 2014 – Third Test Covering Chapters 19-27  
November 27-29, 2014 - Thanksgiving  
December 1, 2014 – Last Day of Class  
December 8, 2014 4:00 – 6:50 PM – Final Exam Covering all Course Material