**DATA STRUCTURES/ALGORTHMS IN JAVA**

CSC383 Fall 2011

Instructor : Dr. I-ping Chu

Lecture : Thursday 5:45 to 9:00 pm Room : CDM 202

Office : Loop CTI 606 phone : 312-362-5817

Office Hour : Thursday 4:15 – 5:45 pm

Email : [ichu@cs.depaul.edu](mailto:ichu@cs.depaul.edu)

Voice mail : 312-476-4356 (Naperville Campus)

**Summary of the course**

Implementation, application, and analysis of algorithms on a variety of data structures, including lists, stacks, queues, trees, and graphs. Algorithmic analysis includes computation of running times, theta notation and solution of divide-and-conquer recurrences. Algorithm Design Techniques.

**Textbooks and printed resources**

Data Structures and Algorithms in Java, 5th edition   
By Goodrich & Tamassia, John Wiley & Sons, 2010.   
ISBN: **978-0470383261**

**Prerequisites**

You must have taken the CSC 211 / CSC 212 course sequence, or CSC 224, or you should have equivalent experience in Java programming.

**Grading**

Homework: 40%   
Midterm Exam: 30%   
Final Exam: 30%

Grading Policy :  
  
 90 - 100 A  
 80 - 89 B  
 70 - 79 C  
 60 - 69 D  
 0 - 59 F

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Tentative schedule

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| Week# | Date | Subject | Readings |
| 1 | 09/08 | Overview. Java Basics, Generic Array, ArrayList, Linked-Lists | Chapter 1, 2, 3 |
| 2 | 09/15 | More about Linked List, Recursion , Analysis of Algorithm Recurrence Relations. | Chapter 3  Chapter 4 |
| 3 | 09/22 | More about Recurrence relations,  Master Theorem, Sorting algorithms | Chapter 4  Chapter 11 |
| 4 | 09/29 | Stack and Queue ADT, Lists Iterators | Chapter 5  Chapter 6 |
| 5 | 10/06 | Trees, Binary Trees, Binary Search Trees, AVL Trees, Splay Trees, Red-Black trees | Chapter 7, 10 |
| 6 | 10/13 | **Midterm Exam** | [week 1 - 5] |
| 7 | 10/20 | Priority Queues, | Chapter 8 |
| 8 | 10/27 | Maps and Dictionaries, Hashing | Chapter 9 |
| 9 | 11/03 | Graphs | Chapter 13 |
| 10 | 11/10 | Algorithm Design Techniques, Review |  |
| 11 | 11/17 | **Final exam** | [Comprehensive] |