CS 5403 – Introduction to Programming and Problem Solving

Spring 2013 Syllabus
(Updated on 3/13/2013)

Professor:
Dr. Yu Chen

Prerequisites:
Graduate Standing
CS5303 Introduction to Programming and Problem Solving

Course Description:
This course introduces data structures. Topics include program specifications and design; abstract data types; stacks, queues; dynamic storage allocation; sequential and linked implementation of stacks and queues; searching methods, sequential and binary; binary trees and general trees; hashing; computational complexity; sorting algorithms: selection sort, heap sort, mergesort and quicksort; comparison of sorting techniques and analysis. Programs are written in C++.

General Information:
It is your responsibility to read all information in this "Syllabus and Policies" section carefully. This is an entirely online course. The general structure for each topic will look like this:

1. Read the slides.
2. Read an assigned portion of the book.
3. Attempt the homework (including written and programming) on your own.
4. Participate in a discussion of the solutions of the homework online.
5. Midterm and final exams will be given online.

I expect that a student who is well-prepared for the course will spend about 10 hours a week on it.

Textbook:
Title: Data Structures and Other Objects Using C++
Author: Michael Main and Walter Savitch
Edition: fourth
Publisher: Addison-Wesley
Grading Distribution:
Your grade will be determined based on 30% homeworks, 30% midterm, 30% final, 10% online participation.

Exams:
There will be midterm and final exam for this course. Exam time will be arranged ahead of time. Generally, you are not allowed for missing the exams.

Homework and Online Participation:
You are expected to complete the homework. No late homework accepted. The process for the homework will be as follows:

Before doing the homework you should read the slides and the associated part of the book. You should look at the problems at the end of each section in the book. If you have any questions about the material you should post a question online.

Homework will be assigned regularly and all work must be submitted via Blackboard system. Answers to written homework must be in PDF format and formatted for lettersize (not A4) paper. You should complete the homework on your own. You must not use the internet to find the solutions. Every word of what you hand in should be your own. If it is not you are committing academic dishonesty.

Online participation includes participation in online forum discussion and submitting answers to online problems as required.

Academic Honesty:
You are required to do the homework completely and entirely on your own, unless otherwise explicitly specified by the professor. You may not try to find the solutions on the web. All words in any homework you hand in must be your own. It is expected that your homework will not be perfect. Yet it is a way of showing me how much you understand the course content.

Tentative Topics for the summer session: (May slightly change as we proceed.)
Lecture 1 -- Software Development
Lecture 2 -- Class Design
Lecture 3 -- Point Class
Lecture 4 -- Container Class
Lecture 5 -- Pointers
Lecture 6 -- Linked Lists
Lecture 7 -- Templates (for education only)
Lecture 8 -- Stacks
Lecture 9 -- Queues
Lecture 10 -- Recursion
Lecture 11 -- Binary Trees
Lecture 12 -- Explanation of Traversals
Lecture 13 -- Searching
Lecture 14 -- Sorting