SYLLABUS

I. Title: CSC252/254 Data Structures and Algorithms

II. Time and Place: Fall Semester 2011,
MWF 7:30-8:20 Rohr Science S302;
Friday 11:00-12:40 a.m. LW216
Final Examination (CSC254): Monday, Dec. 12 from 8:00-10:00 a.m.

III. Credit: CSC 254: four units for 4 class sessions per week. CSC 252: two units for 4 class sessions per week for 8 weeks.

IV. Instructor: Jeff McKinstry, Ph.D., Professor of Computer Science

V. Office Hours: Rohr Science 216; phone: (619) 849-2269; email: jeffmckinstry@pointloma.edu

Monday	11:00 – 11:50 a.m. and 1:30-3:30 p.m.
Tuesday	11:00 – 11:50 a.m.
Wednesday	11:00 – 11:50 a.m. and 1:30-3:30 p.m.
Thursday	11:00 – 11:50 a.m.
Friday	1:30 – 3:30 p.m.

VI. Texts:
Nyhoff, L. *ADTs, Data Structures, and Problem Solving with C++, 2nd Edition*, Prentice Hall, 2005.
Nyhoff, L. *Lab Manual to Accompany ADTs, Data Structures, and Problem Solving with C++, 2nd Edition*,, Prentice Hall, 2006.

VII. Position of the course in the college curriculum:

A. The course is offered at the sophomore level with a minimum prerequisite of CSC 153.
B. The course is offered as a lower division requirement for the major and minor in Computer Science and IS.

VIII. Objectives of the course: At the conclusion of the course the student should understand the following:

Definition, implementation, and applications of the basic data structures and associated operators; these tools are essential for all computer scientists and programmers and will be used repeatedly throughout your career, therefore you will want to master them.
Abstract Data Types (ADT) and their purpose
Computational complexity (time and space)
Sorting and searching algorithms and their computational complexity
Advanced Object Oriented Concepts (inheritance, and polymorphism)

IX. Learning Outcomes:

Students will be able to write correct and robust software.
Students will understand the theory of algorithms and computation.
Students will understand the interaction between hardware and software.
Students will be able to apply their technical knowledge to solve problems.
Students will communicate effectively orally and in writing.

X. Course Organization: Class time will be used for:
1. Introduction of material in the text to be assigned.
2. Discussion of assigned material in the text.
3. Discussion of student questions on the test or class material, including exercises attempted.

4. Administering tests.
5. Laboratory projects

XI. Attendance: See the College Catalogue for a complete statement.

XII. Student Evaluation:

CSC 254:

Laboratory Projects	30%
Homework/in-class assignments	10%
3 Exams	30%
Term Project	10%
Final Exam	20%

CSC 252:

Laboratory Projects	40%
Homework/quizzes	20%
2 Exams	40%

Late assignments will be worth 70% if turned in after the class period in which they are due, and are not accepted if late by more than 7 days.

Computer programs will be evaluated according to the instructions in the lab manual. But the expectations are that your program 1) works correctly on all test data; 2) is well documented with comments, and 3) is written in appropriate programming style.

You will be required to **email a zip file to the grader with all source code and the executable file** for all programming assignments.

Grades will be determined as follows:

93-100%	A
90-92%	A-
87-89%	B+
83-86%	B
80-82%	B-
77-79%	C+
73-76%	C
70-72%	C-
67-69%	D+
63-66%	D
60-62%	D-
0-59%	F

The term project will be to write a computer program to play the game of 20 questions intelligently (See http://www.20q.net for an example). It will involve **writing a somewhat large computer program in C++**. Term projects are expected to be individual projects or teams of 2 this semester. A truly ambitious student might want to do a little research into optimal ways to play 20 question-like games, find out what the state-of-the-art is by reading journal papers, and experiment with one or more algorithms. You will be submitting your program for a competition. More details will follow.

XIII. Academic Accommodations:

All students are expected to meet the minimum standards for this course as set by the instructor. Students with

learning disabilities who may need accommodations should first discuss options and services available to them in the Academic Support Center (ASC) during the first two weeks of the semester. The ASC, in turn, will contact professors with official notification and suggested classroom accommodations, as required by federal law. Approved documentation must be provided by the student and placed on file in the ASC prior to the beginning of the semester.