**Reedley College** **Spring 2009**
**CSCI 41 - Programming Concepts and Methodology II**

# SYLLABUS

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| **Class Hours** | MW | 11:00 a.m. – 11:50 a.m. | Room: AGR 2 (Lecture) |
| | F | 11:00 a.m. – 11:50 a.m. | Room: CCI 208 (Lecture) |
| | F | 2:30 p.m. – 4:20 p.m. | Room: FEM 4E (Lab) |
| **Schedule No** | 56561 | | |

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| **Instructor** | Sharon Wu |
| **Phone** | 638-3641 ex-3497 |
| **Office Hours** | M 9:00 am – 10:30 am; LRC 106 |
| | W F 9:30 am – 10:30 am; FEM 4D |
| | or By appointment |
| **Office** | FEM 4D |
| **E-mail** | sharon.wu@reedleycollege.edu |

**Course Objectives:**

In the process of completing this course, students will:

A. Write programs using object-oriented programming and the C++ language
B. Define and use dynamic arrays, linked list, stacks and queue data structures
C. Use string, stack and queue classes defined in C++ Standard Libraries
D. Write programs using pointers, recursion and file manipulation techniques
E. Understand and utilize binary search tree data structure.
F. Identify and correct syntax and logical errors in computer programs
G. Create proper test cases to test computer programs.
H. Write a total of 1000 to 2000 lines of programs.

**Course Outcomes:**

Upon completion of this course, students will be able to:

A. Construct classic data structures used in all computer programs.
B. Write programs using advanced programming concepts
C. Analyze problems, design and develop computer programs to solve these problems.
D. Debug and test programs.

**Course Outline:**

1. Input and Output in C++: Writing to standard output; Reading from standard input; Writing or reading a text file.
2. Software Development: Program specification, design, implementation; Running time analysis; Big-O notation; Testing and debugging.
3. Abstract Data Types and C++ Classes: Classes and members; Constructors; Using a name space, header file, and implementation file; Classes and Parameters; Operator overloading.
4. Container Classes: The bag class; The sequence class.
5. Pointers and Dynamic Arrays: Pointers and Dynamic Memory; Pointers and Arrays as parameters; The string class.
6. Linked List: A node class; A linked list; A container class with a linked list.
7. Software Development with Templates, Iterators, and The Standard Library: Template functions; Template classes.
8. Stacks: Stacks and the STL stack; Stack applications; Implementations of the stack class.
9. Queue: Queue and the STL Queue; Queue applications; Implementations of the Queue class; Priority Queues.
10. Trees: Introduction to Trees; Tree representations; Binary tree nodes; Tree traversals; Binary Search Trees.

**Course Prerequisite:**

Programming Concepts and Methodology I (CSCI 40) or
Programming for Scientists and Engineers (ENGR 40)

**Textbook:**

Data Structures and Other Objects Using C++, 3ed. By Main & Savitch, Addison-Wesley

**Blackboard:**

Blackboard is used to post course information, assignments, and announcements.
To log-in Reedley College Blackboard:

User name: your student ID
Password: (* Be sure to change your password after you login)

**Computer Lab:**

You can use the computers in the RC library computer lab or computer lab FEM 4E while the room is available (i.e. not used for classes). Computers use Window-XP operating system and Borland C++ is installed on these PCs.

**Homework Assignment:**

**Chapter homework** is assigned for each chapter. The homework varies in length depends the material covered. Homework is due after the chapter is completed.

Homework is worth 10 points each and will be graded on **correctness, completeness, neatness**, and **effort** of the entire assignment. Points will be deducted for late homework. Homework should be done on 8.5" by 11" lined paper, stapled on upper left hand corner, with your name and chapter/section number (or program assignment number) written on the upper right hand corner.

**Programming Assignments:**

Borland C++ Builder is used in this class. A CD with Borland C++ Builder is part of the text book package. Programs are assigned for each chapter. The assignments are posted on Blackboard. For each program, submit all related program files and program input/outputs.
Programs are graded using following criteria:

1. Correct syntax of computer language,
2. Program design and logic flow
3. Documentation and readability
4. Test cases.

**Tests:**

There will be a test at the end of every two chapters. Each test is **100** points. Early tests can be arranged with a very good reason. A more difficult late test can only be arranged if you have an excuse verified by an impartial party (i.e., a doctor or a court clerk).

**Grading:**

50% of your final grade points are from the average of test scores.
10% of your final grade points are from the average of chapter homework assignments.
10% of your final grade points are from the average of online quizzes.
30% of your final grade points are from the average of program lab assignments.
Final grade is assigned using following scale:

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| 90-100 | points | A |
| 80- 89 | points | B |
| 70- 79 | points | C |
| 60- 69 | points | D |
| < 60 | points | F |

If you have perfect attendance and your final grade is within 1 point (or 1%) of the next higher letter grade, you will be awarded the next higher letter grade.

**Attendance:**

Students are expected to attend all class meetings, be on time, and be in class the entire class session. Students, who leave the class before the end of class, will be counted as being absent. Your classmates and I would greatly appreciate that you take care of your personal needs (i.e., using the restroom, getting a drink…etc.) before the class begins.

Attendance will be taken in each class. Tardiness will be count as absence. Students will be dropped from the class if they fail to attend the first class session of the semester. During the semester up to final drop date, any student who missed more than two weeks of class meetings will be dropped from this class (6 classes). Being absent the day homework/assignment is collected does **not** entitle you to turn in the homework late without penalty!

**Accommodations**

If you have a verified need for an academic accommodation or materials in alternate media (i.e., Braille, large print, electronic text, etc.) per the Americans with Disabilities Act (ADA) or Section 504 of the Rehabilitation Act, please contact me as soon as possible.

**Student Conduct:**

Students are expected to conduct themselves in a responsible manner in the classroom. Specific rules and regulations have been established in Board Policy 5410. A copy of this policy is available in the college library, the Admissions Office, the Vice President of Student Services, the Vice President of Instruction's Office, and in the Student Activities Office. Failure to adhere to the accepted standards will result in disciplinary action.

**Important Dates:**

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| Class begin | Monday | 01/12/09 |
| Last day to register | Friday | 01/30/09 |
| Last day to change to/from a Pass/No-Pass grading basis | Tuesday | 02/17/09 |
| Last date to drop: | Friday | 03/13/09 |
| No classes: | | |
| Martin Luther King, Jr. Holiday | Monday | 01/19/09 |
| Lincoln Holiday | Friday | 02/13/09 |
| Washington Holiday | Monday | 02/16/09 |
| Spring Break | Mon – Fri | 04/06/09 – 04/10/09 |
| **Final Exam** | **Monday** | **05/18/09**<br>**11:00 a.m. – 12:50 p.m.** |