

CS 1410 : Object Oriented Programming using C++ (30646)
Department of Computer Science
College of Applied Sciences and Technology, Weber State University

COURSE SYLLABUS

Instructor:	Dr. Raji Lauffer	Term:	Spring 2013
Office:	TE 110D	Class Meeting Days:	Monday, Wednesday
Phone:	7684 (ext)	Class Meeting Hours:	11:30AM – 1:20PM
E-Mail:	rajilauffer@mail.weber.edu (preferred contact method)	Class Location:	TE 202S
Website:	-	Lab Location:	-
Office Hours:	Monday, Wednesday 9:00AM – 11:30AM		

I. Welcome!

Welcome to CS 1410! I hope that as you learn, you will begin to get comfortable with and appreciate many of the object oriented concepts in C++. I also hope that at the end of this course you will have developed basic problem solving and programming skills in computer science and use those to successfully code in C++. Please feel free to ask questions or offer comments, suggestions during class or seek any help in the subject matter either during class or during office hours or by making an appointment or using the contact information provided above.

II. University Course Catalog Description

An introduction to the C++ language. Topics will include data types, control structures, functions, pointers, arrays, I/O streams, classes, objects, encapsulation, overloading, inheritance and use of these concepts in problem solving.

III. Course Overview

This is an introductory programming course in C++. We will cover advanced object oriented concepts but no prior programming knowledge is required since this is a lower level class. Please see **Course Prerequisite** section for the list of pre-requisites to this course. In this course we will

- Understand and program the basic constructs, data types, and components of the C++ language and use the language to solve a wide range of problems.

- Understand the OO paradigm and how C++ supports and implements the specific features using the class construct.
- Understand and operate a typical C++ Integrated Development Environment (IDE) and how to create, compile, execute and debug programs in that environment.
- Understand and use effectively the basic data structures such as arrays and linked lists.
- Understand the general purpose of the templates, exceptions, and the Standard Template Library (STL) including some of the common algorithms and containers.

IV. Course Prerequisites

CS 1400 – Fundamentals of Programming.

V. Course Credits

4 credit hours

VI. Required Texts and Materials

Lafore, Robert. *Object Oriented Programming in C++*. 4th ed. Sams, 2001. ISBN - 978-0672323089.

VII. Supplementary (Optional) Texts and Materials

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VIII. Course Objectives

At the end of this course, you will

- Understand and be able to use the fundamental concepts of the ANSI C++ language including
 - Variables
 - Expressions
 - Statements
 - Flow-of-control statements (sequential, branching, looping)
 - Functions (definitions and calls), friend functions, virtual functions
 - Structures and unions
 - Pointers, references and the associated operators and syntax
 - C++ I/O streams
 - Templates and Exceptions
 - Standard Template Library (STL)
 - Understand the Object-Oriented model and its relationship to and implementation in the C++ programming language; specifically, you will understand and be able to use:
 - Classes, objects, instantiation (both static and dynamic) and object deallocation

- Relationships: inheritance, association, aggregation, composition and dependency
 - Attributes and functions, and their relationship to encapsulation and abstraction
 - Member access and the associated operators and syntax
 - Virtual or abstract classes
 - Polymorphism
- Understand the physical organization of C++ programs including the organization of multi-class programs
 - Understand and operate a typical C++ Intergrated Development Environement (IDE) and how to create, compile, execute, and debug programs in that environment.
 - Have gained experience solving problems and then expressing the solution to those problems as computer programs.
 - Have gained a better understanding of team dynamics, especially when writing software code and completing assignments as a group.

IX. Instructor's Objectives

To provide a warm, inviting, learning atmosphere and an opportunity to network with peers. To provide quality instruction in order to help and enable you to achieve all the course objectives by the end of this semester.

X. Basis for Final Grade

Programming Assignments: There will be weekly programming assignments for the class based on the materials covered during the week. Each assignment will involve solving one question at the end of each chapter in the book. The lowest assignment will be dropped to provide for unforeseen circumstances. Each assignment is due at 11:59pm on the due date through WSU online. Students will have to work on these assignments and make submissions individually.

Problem Solving Assignments: There will be a problem solving assignment due every two weeks. It will be based on the topics covered in the previous two weeks. All assignments will count towards the final score and are due at 11:59pm on the due date through WSU online. Students are welcome to work on these assignments as a group (maximum 3 members) or individually.

Exams: There will be one mid-term covering the course materials up until that point. There will be one final exam that will be comprehensive. The exams will either be in-class or on the Chi-Tester.

Assessment	Percent of Final Grade
Programming Assignments	30%
Problem Solving (Group) Assignments	20%
Midterm	25%
Final Exam	25%
	100%

Grading Scale:

Grading Scale (%)		
94-100		A
90-93		A-
87-89		B+
84-86		B
80-83		B-
77-79		C+
74-76		C
70-73		C-
67-69		D+
64-66		D
60-63		D-
0 - 59		E

XI. Grade Dissemination

Graded tests and materials in this course will be returned once they are graded. You can access your scores at any time using the online course Grade Book function in WSU Online. Please note that scores returned mid-semester are unofficial grades.

XII. Course Policies: Grades

Late Work Policy:

There are no make-ups for any assignments, the midterm, or the final exam. Assignments turned in late will be assessed a penalty: a half-letter grade if it is one day late, or a full-letter grade for 2-7 days late. Student work will not be accepted if overdue by more than seven days.

Extra Credit Policy:

Students who submit their individual programming assignment the Saturday, by midnight, before its due (on a Monday by midnight), will receive 10% extra credit. There are no other extra credit opportunities available.

Grades of "Incomplete":

Current university policy concerning incomplete grades will be followed in this course. An 'Incomplete' may be given only when the student, having satisfactorily completed approximately 80% of the required work, is unable to complete the class work for a legitimate reason (such as illness or accident).

“I really need to get a C or <Fill in your desired grade>” Policy:

In order to uphold academic rigor and integrity, student grades must be based on the degree to which the course requirements listed in the syllabus are fulfilled. Extra credit assignments are not allowed. If you approach the instructor anytime during the term claiming that special allowance should be made because you need a C to move forward in the program, graduate, receive financial aid, etc., your request will be denied and you will be referred to this clearly worded policy.

Rewrite Policy:

None.

Group Work Policy:

It is highly recommended that everyone take part in a group assignments. All members of a group will receive the same score; that is, the assignment is assessed and everyone receives this score. However, the cumulative grade for all problem solving (group) assignments is only 20% of your grade for this course. Please feel free to use any tools within or outside of Canvas to collaborate with your group. If you have any other helpful ones that you'd like to share, please let me know (for instance, [Google+ Hangout \(https://tools.google.com/dlpage/hangoutplugin\)](https://tools.google.com/dlpage/hangoutplugin)).

XIII. Course Policies: Technology and Media

Email:

Course related email will be sent to your mail.weber.edu account. Students can email the instructor at the email address provided above. The Canvas portal for the course will also allow you to email the instructor or other students in your course. You can expect to receive an answer to your email within 24 hours except during weekends.

Lab Usage:

Please DO NOT unplug any cables. Program storage is not guaranteed on lab computers – please bring a flash or external drive to class. DO NOT play games or view any non-class related websites during class.

Laptop Usage:

Students are welcome to use their personal laptops instead of the lab computers. Please install any required software before hand (please see **System Accounts** section for more information). This may

include either a C++ or Java compiler based on your preferences. DO NOT play games or view any non-class related websites during class.

System Accounts:

Assignments can be completed at the WSU Computer Science lab. If you have access to a standard C++ or Java compiler, you may complete the assignments at your own desired location. In this case, it would not be necessary to visit the WSU Computer Science Lab.

Students are encouraged to avail of WSU's MSDN Academic Alliance (MSDNAA) to download many popular Microsoft products for home use. The website for the MSDNAA is <http://msdnaa.cs.weber.edu>. If DNS issues prevent the site from being visible outside of the WSU network, alternatively you can try <http://137.190.19.14>

Various software applications are also available remotely through a Windows Terminal Server hosted by the Computer Science Department. The terminal server can be accessed at athena.cs.weber.edu:53243

For more information, please see <http://icarus.cs.weber.edu/index.html>. If you have additional questions or have anything that needs further clarification, please contact CS lab personnel using the information listed in the website.

Classroom Devices:

Please check with the instructor before making any recordings of the class.

Help Desk Contact Numbers:

Canvas - 6499 (ext)

Chi-Tester - 6477 (ext)

<http://ced.weber.edu/wsuoonline/fall-2012-student-newsletter/> (Student Newsletter with additional contact numbers, latest updates etc.)

XIV. Course Policies

Disability Access:

Weber State University is committed to providing accommodations for all persons with disabilities. This syllabus is available in alternate formats upon request. Any student requiring accommodations or services due to a disability must contact Student Services with Disabilities (SSD) in room 181 of the Student Services Center. SSD can also arrange to provide course materials (including this syllabus) in alternative formats, if necessary. For more information, please contact them at 801-626-6413, ssd@weber.edu or www.weber.edu/ssd

Attendance Policy: Attendance is mandatory! Please do not schedule work or leisure activities that conflict with class. Attendance will be taken in every class but will *not* count towards your grade.

Professionalism Policy:

Please show up to class on time with a positive attitude and ready to learn. Stay until the end of each class and instruction is complete. Come to each session prepared to discuss the session materials. Participate fully in activities and respect and follow the directions of the instructor. Treat other participants with due consideration and be respectful of their opinions. Be willing to share your experiences and knowledge with others. Use common sense and good judgement regarding your behavior during class. Per university policy and classroom etiquette; mobile phones, iPods, *etc.* **must be silenced** during all classroom and lab lectures. Those not heeding this rule will be asked to leave the classroom/lab immediately so as to not disrupt the learning environment. Please arrive on time for all class meetings. Students who habitually disturb the class by talking, arriving late, *etc.*, and have been warned may suffer a reduction in their final class grade.

Academic Conduct Policy:

Academic dishonesty in any form will not be tolerated. A professional standard of performance in class is expected. Failure to maintain WSU academic ethics/honesty, including the avoidance of cheating, plagiarism, collusion, and falsification could result in failing the course and may result in hearings held and/or sanctions being imposed. The WSU student code states that students shall maintain academic ethic and honesty. To this end, the following activities are specifically prohibited:

a. *Cheating*, which includes but is not limited to:

- i) Copying from another student's test;
 - ii) Using materials during a test not authorized by the person giving the test;
 - iii) Collaborating with any other person during a test without authorization;
 - iv) Knowingly obtaining, using, buying, selling, transporting, or soliciting in whole or in part the contents of any test without authorization of the appropriate University official
 - v) Bribing any other person to obtain any test;
 - vi) Soliciting or receiving unauthorized information about any test;
 - vii) Substituting for another student or permitting any other person to substitute for oneself to take a test.
- b. *Plagiarism*, which is the unacknowledged (uncited) use of any other person's or group's ideas or work. This includes purchased or borrowed papers;
- c. *Collusion*, which is the unauthorized collaboration with another person in preparing work offered for credit;

- d. *Falsification*, which is the intentional and unauthorized altering or inventing of any information or citation in an academic exercise, activity, or record-keeping process;
- e. Giving, selling, or receiving unauthorized course or test information;

- f. Using any unauthorized resource or aid in the preparation or completion of any course work, exercise, or activity;

- g. Infringing on the copyright law of the United States which prohibits the making of reproductions of copyrighted material except under certain specified conditions.

Please see Student Code at http://www.weber.edu/ppm/Policies/6-22_StudentCode.html for more information. WSU subscribes to TurnItIn.com, an electronic service that verifies the originality of student work. Enrollment in this course may require you to submit some or all of your assignments to it this semester, and documents submitted to TurnItIn.com are retained, anonymously, in their databases. Continued enrollment in this course constitutes an understanding of and agreement with this policy. For more information, see http://wsuonline.weber.edu/plagiarism/student_resources.asp

CS Department policy dictates that any verifiable evidence of student academic cheating, as defined and determined by the instructor, will result in: 1) an automatic failing grade for the class and 2) a report to the Dean of Students that will include the student's name and a description of the student's dishonest conduct. The University affords you certain rights, including the right to challenge the accusation of cheating. The Dean of Students will explain these rights to you if you are accused of cheating.

Exam Rescheduling Policy

Exams can only be taken on the days given unless arrangements are made to take them ahead of time. Please see Bad Weather Policy (below) for exceptions to this rule.

Bad Weather Policy:

Please do not take unnecessary risks in inclement weather. Programming tests will be rescheduled in the event of unsafe weather. Please sign up for the WSU Code Purple through your WSU online portal (under the My Weber tab)

Time Allocation:

Please expect to spend two to three hours of study per week for each credit hour of a university course. Computer and programming classes typically require time in the upper range.

XV. Schedule

Date	Course work	Topics to be Discussed in Class
01/07 (Week 1)	First day of class.	Chapter 1 & Chapter 2 The Big Picture & C++ Programming

		Basics
01/09 (Week 1)		Chapter 3 Loops and Decisions
01/14 (Week 2)	Programming Assignment 1 due.	Chapter 4 Structures
01/16 (Week 2)		Chapter 5 Functions
01/21 (Week 3)	Programming Assignment 2 due.	Holiday (Dr. Martin Luther King Jr. Day)
01/23 (Week 3)	Problem Solving Assignment 1 due.	Chapter 6 Objects and Classes
01/28 (Week 4)	Programming Assignment 3 due.	Chapter 6 Objects and Classes (continued)
01/30 (Week 4)		Chapter 7 Arrays and Strings
02/04 (Week 5)	Programming Assignment 4 due.	Chapter 7 Arrays and Strings (continued)
02/06 (Week 5)	Problem Solving Assignment 2 due.	Chapter 8 Operator Overloading
02/11 (Week 6)	Programming Assignment 5 due.	Chapter 8 Operator Overloading (continued)
02/13 (Week 6)		Chapter 9 Inheritance
02/18 (Week 7)		Holiday (President's Day)
02/20 (Week 7)	Problem Solving Assignment 3 due.	Chapter 9 Inheritance (continued)
02/25 (Week 8)	Programming Assignment 7 due.	Mid-term lab / review
02/27 (Week 8)		Mid-term exam
03/04 (Week 9)		Spring break. No class.
03/06 (Week 9)		Spring break. No class.
03/11 (Week 10)		Chapter 10 Pointers
03/13 (Week 10)	Problem Solving Assignment 4 due.	Chapter 10 Pointers (continued)
03/18 (Week 11)	Programming Assignment 8 due.	Chapter 10 Pointers (continued)
03/20 (Week 11)		Chapter 11 Virtual Functions
03/25 (Week 12)	Programming Assignment 9 due.	Chapter 11 Virtual Functions (continued)
03/27	Problem Solving Assignment 5 due.	Chapter 12

(Week 12)		Streams and Files
04/01 (Week 13)	Programming Assignment 10 due.	Chapter 12 Streams and Files (continued)
04/03 (Week 13)		Chapter 13 Multifile Programs
04/08 (Week 14)	Programming Assignment 11 due.	Chapter 14 Templates and Exceptions
04/10 (Week 14)	Problem Solving Assignment 6 due.	Chapter 15 The Standard Library Template
04/15 (Week 15)	Programming Assignment 12 due.	Review
04/17 (Week 15)	Last day of classes.	Review
04/23- 04/25		Final exam.

* Note: The Schedule is subject to revision

Disclaimer: Instructor reserves the right to update the syllabus and its contents in any way as deemed necessary. Every effort will be made to communicate these changes to the students as swiftly and clearly as possible.

