C/C++ Programming III:

Intermediate Programming with Objects

Syllabus

UC San Diego

E X T E N S I O N

Course Number: CSE-40477
Section ID: 151116
Quarter: Fall 2020
Course Dates: 9/29/2020 – 11/28/2020

Instructor Information

Name: Raymond Mitchell III
Email: ray@raymondmitchell.com

Communication Policy

You may contact me by email (ray@raymondmitchell.com) or via the Canvas email feature. My goal is to **respond within 24-48 hours**. If you do not receive a response during this period, please follow-up to ensure that your email was received.

Please communicate with me early and often if you are experiencing challenges in completing course assignments on time.

Course Description (Goals and Objectives)

Learn the fundamentals of Object-Oriented Programming using the C++ language. You will learn how to use C++ to model real-world systems. Homework assignments reinforce the concepts covered each week. Projects provide experience with larger systems of interacting objects. Course highlights:

- Object-oriented analysis and design
- Classes, data members, and member functions
- Function overloading and operator overloading
- Inheritance, polymorphism, and function overriding
- Exceptions and error handling

- Templates
- The C++ standard library
- Streams and I/O

Course Materials and Textbooks

The course materials and textbooks listed here can be acquired through the UCSD bookstore.

Required Texts

- C/C++ III Lecture Notes, Raymond Mitchell III, ISBN 9780100729889

Recommended Texts *(useful as reference)*

- C++ How to Program, 10th Edition, Deitel & Deitel, ISBN 9780134448237

Course Prerequisites

CSE-40476 C/C++ Programming II or equivalent knowledge and experience.

Student Learning Outcomes

By the end of this course, students will be able to:

- Read and write C++03-compliant programs
- Define custom data types to model real-world problems
- Use and extend C++ containers, iterators, and algorithms to solve problems
- Use the C++ streams library to perform I/O with files and in-memory buffers
- Use multiple files to keep C++ code organized
- Use software tests to verify the behavior of a program

Course Schedule

Session	Topic & Reading	Assignments w/due dates
1	**Introduction to C++** • Mitchell section 1	*Homework #1 (due 10/6/2020 11:59pm)*
2	**Program structure** • Mitchell section 2	*Homework #2 (due 10/13/2020 11:59pm)*
3	**Classes in-depth** • Mitchell section 3	*Homework #3 (due 10/20/2020 11:59pm)* *Project #1 (due 11/3/2020 11:59pm)*
4	**Operator overloading** • Mitchell section 4	*Homework #4 (due 10/27/2020 11:59pm)*
5	**Inheritance** • Mitchell section 5	*Homework #5 (due 11/3/2020 11:59pm)*
6	**Exceptions & templates** • Mitchell section 6	*Homework #6 (due 11/10/2020 11:59pm)* *Project #2 (due 11/24/2020 11:59pm)*
7	**String & vector** • Mitchell section 7	*Homework #7 (due 11/17/2020 11:59pm)*
8	**Streams** • Mitchell section 8	*Homework #8 (due 11/24/2020 11:59pm)*
9	**The standard library** • Mitchell section 9	*None*

Grading and Assignment Information

Grading Scale

Your final course grade is based on the percentage of points you have earned.

Grades	
A	85-100%
B	65-84%
C	50-64%
F	<50%

Weighted Grading Criteria

Your course grade is determined by the grades you receive on the homework and projects. The course grade is calculated as follows:

- Homework – 1/3 of course grade
- Project #1 – 1/3 of course grade
- Project #2 – 1/3 of course grade

All homework assignments are weighted equally, and you may drop the lowest grade. This means your homework grade is determined by taking the average of your top 7 homework assignment grades.

Grading Policies

This course can be taken as part of the C/C++ Programming certificate. In order for the class to count towards your certificate it must be taken for a letter grade or as pass/no pass. Classes that are taken as NFC cannot count towards a certificate. You can change your grading option any time BEFORE the last day of class through My Extension.

Late Policy

Assignments are due on the dates listed in the Course Schedule and are submitted via canvas. Late homework will be accepted **only on the day after the due date (by midnight)** for only 50% max credit, unless e-mail confirmation from the instructor prior to the start of the class allows for another arrangement.

Expect and plan for contingencies and technical problems (they WILL happen!). Remember that you can drop the lowest assignment so plan accordingly.

Assignments

Assignments are submitted via canvas.

For **homework** you should submit a single PDF file. This file should contain your source code and a screenshot of your program's output.

The PDF file you submit should be named as follows:

- <your name>HW<homework #>.pdf (e.g. "RayMitchellHW1.pdf")

For **projects** you should submit a single zip file. This file should contain your source code files. Only the source code files you write should be included. Each project will indicate which files you should include.

The zip file you submit should be named as follows:

- <your name>PR<project #>.zip (e.g. "RayMitchellPR1.zip")

Assignment Feedback

Assignment grades and solutions will be posted within 1 week of the assignment due date.