C/C++ Programming II Syllabus

UC San Diego
EXTENSION

Course Information

Course Number: CSE-40476
Section ID: 164440
Quarter: Spring 2022
Course Dates: 3/29/2022 – 5/28/2022
Credit units: 3.0

Instructor Information

Name: Ray Mitchell
Email: MeanOldTeacher@MeanOldTeacher.com

Instructor/Student Communication

Instructor/student communication is via email only and is strongly encouraged. There are no specific “office hours” but inquiries are answered as quickly as possible, often within minutes.

Course Description and Objectives

This course picks up where **C/C++ Programming I** leaves off and extends the basic concepts already learned by introducing advanced topics such as multidimensional array pointers, state machines, and data structures. Students are challenged by a diverse set of practical applications like those that might be encountered in a professional programming environment. This course does not introduce any new C++ topics beyond those taught in **C/C++ Programming I** nor does it cover object-oriented programming, which is taught in the **C/C++ Programming III** and **IV** courses.

Course Prerequisites

Proficiency and a good understanding of the topics taught in the **C/C++ Programming I** course is highly recommended. A C/C++ programming course from another institution or prior casual experience writing C/C++ programs may not be sufficient.

Course Materials

Operating Systems and Program Development Tools:
This course is not tied to any specific operating system or program development tools and students may choose according to their own needs and preferences. The most commonly chosen free products are "Visual Studio Community" for Windows, "Xcode" for macOS, and "Code::Blocks" for Linux and Windows.

Drawings, Diagrams, and PDF File Conversion:
Some assignments require drawings/diagrams in PDF format that must either be machine-produced or neatly drawn by hand and digitized. PDF converters are readily available as well as being built into many applications such as Microsoft Word, Visio, etc.

Required Book:
The only book required for this course is titled "Beginning & Advanced C/C++ Notes" and students must refer to it as they listen to the course's audio lessons. It is only available from the UCSD Bookstore and includes a hard copy and an online version. For convenience students are initially provided with the sections necessary for the first three lessons. Since this book is only a collection of notes pertaining to the course lessons and homework and is not intended as a comprehensive textbook, supplemental textbook recommendations are provided for students wanting more comprehensive information.

Email Is Required:
Email addresses for which attachment files having **.zip**, **.pdf**, **.txt**, **.c**, **.cpp**, or **.h** extensions are removed or corrupted are not suitable for this course. Students should always check their spam mailboxes if an expected email is not received.

Course "Academic Integrity" Policy

Please make sure you fully understand every aspect of the course academic integrity policy as stated below and ask questions if you do not. I take it very seriously and will enforce it.

Course "Academic Integrity" Policy

The following are considered academic integrity policy violations:

1. Submitting a solution you did not design and develop entirely on your own.
2. Altering a solution that is not entirely your own in an attempt to "fool" the instructor.
3. Working together with one or more other persons toward a common solution.
4. Making any part of a solution accessible to anyone else.

Getting instructor help is recommended when having problems and you may use any code he gives you. Occasionally discussing general strategies and general coding issues with others is permissible, but your solutions must be your own work.

PENALTIES for any violation of the course's academic integrity policy:

1. A score of zero for the entire assignment containing such a violation in any exercise.
2. Review of all previous assignments with a score reduction to zero if previously unnoticed academic integrity violations are found.
3. Potential referral to the Office of Student Conduct for further action.

Assignment Information and Grading Policies

- The final course grade is based entirely on eight 20-point assignments, all of which consist of "exercises" that are customized for and emailed to each student at the beginning of the course. There are no exams, extra credits, makeups, or dropped scores.
- Exercises are ONLY accepted for grading via email submission to the "assignment checker" and may be resubmitted as many times as desired before the deadlines indicated in the table below. After each deadline, the newest of each on-time exercise will be graded, recorded, and returned via email along with my solutions.
- Students are allowed one five-day extension for their choice of assignments 1-7 (but not 8) if requested before the deadline and I am notified upon completion. Extensions will also be granted for verifiable serious illness, medical/family emergencies, U.S. military obligations, and extremely late enrollments, but not for job-related issues, vacations, or anything else.

Exercise Submission Deadlines **Unexcused late submissions will receive NO credit.**			
Asg #	Related Notes	All Are Tuesdays @ 11:59PM	Time Zone
1	C.1 – C.5, 11.1 – 11.9, D.1 – D.9	April 5	PDT
2	12.1 – 12.8	April 12	PDT
3	13.1 – 13.13	April 19	PDT
4	13.14 – 13.27	April 26	PDT
5	14.1 – 15.3	May 3	PDT
6	15.4 – 15.14	May 10	PDT
7	15.15 – 16.7	May 17	PDT
8	16.8 – 17.3	May 24	PDT
9	17.4 – 17.15	*no assignment 9*	--

Course Grading Scale:
The final course grade is determined entirely by the sum of the points earned on the eight 20-point assignments as indicated in the table on the right.

Refundable Deductions:
No deductions will be refunded for any assignment unless I have made an error.

Final Course Grades			
Points	Percent	Grade	Status
>= 152	95%	A+	pass
>= 136	85%	A	pass
>= 128	80%	B+	pass
>= 104	65%	B	pass
>= 96	60%	C+	pass
>= 80	50%	C	pass
>= 77	48%	C-	pass
< 77	48%	F	fail

Course Topical Outline

The following topics are scheduled to be covered during the lessons indicated but are subject to change based upon class needs. Note numbers refer to notes in the required course book.

1. *Notes* C.1 – C.5
   Notes 11.1 – 11.9
   Notes D.1 – D.9
   Number Systems
   Bitwise Operators
   Preprocessor Topics

2. *Notes 12.1 – 12.8*
   The C/C++ Runtime Environment
   Recursion

3. *Notes 13.1 – 13.13*
   Pointer Arithmetic (review)
   The Right-Left Rule (review)
   The Reverse Right-Left Rule
   Negative Indexing
   Compact Pointers
   Copying Arrays
   The *strtok* Function

4. *Notes 13.14 – 13.27*
   Pointers to Arrays
   Arrays as Arguments
   Multidimensional Array Access
   Storage Map Equations
   Pointer Arrays

5. *Notes 14.1 – 15.3*
   Dynamic Arrays
   Dynamic Pointer Arrays
   State Machines

6. *Notes 15.4 – 15.14*
   Pointers to Functions
   Sorting & Searching
   The *qsort* Function
   The *bsearch* Function
   Singly Linked Lists

7. *Notes 15.15 – 16.7*
   Trees
   Hashing
   Data Portability

8. *Notes 16.8 – 17.3*
   Fixed Point Representations
   Floating Point Representations
   Locating Records in Files
   The *getenv* and *system* Functions
   Signals

9. *Notes 17.4 – 17.15*
   Program Termination
   Error Handling
   Date and Time Functions
   Variable Argument Functions
   Nonlocal gotos