Syllabus CSE 165 01, Spring 2022

Instructor:

Ammon Hepworth

Designation:

CSE 165: Introduction to Object-Oriented Programming

Catalog Description:

This course covers object-oriented programming concepts, such as classes, objects, methods, interfaces, inheritance, encapsulation, and polymorphism. While the goal of the course is to teach students how these concepts can be implemented in C++, significant emphasis is put on object-oriented modeling and design techniques.

Textbooks and Other Required Materials:

Bruce Eckel -- Thinking in C++: Introduction to Standard C++, 2nd Edition, Volume 1, 2000, Prentice Hall, ISBN: 0-13-979809-9.

Available online at:
https://www.micc.unifi.it/bertini/download/programmazione/TICPP-2nd-ed-Vol-one-printed.pdf

Course Objectives:

Students in the class will learn to:
- create programs in Linux using the gcc compiler and makefiles
- apply standards and principles to write truly readable code
- write clean programs without memory leaks
- test and debug programs
- learn the fundamentals of input and output using C functions and the C++ templated classes
- develop the needed objects and data structures to solve a given computation problem
- understand and demonstrate the concepts of object-oriented design, polymorphism, interface, inheritance, and templates
- apply object-oriented design in the development of implementation projects

Prerequisites:

CSE 031, CSE 100 and MATH 024

Course Policies:

Labs are designed to be started and worked on in the time frame you have in lab. Assignments must be completed individually; software assignments must not be shared.

Academic Dishonesty Statement:

a. Each student in this course is expected to abide by the University of California, Merced's Academic Honesty Policy. Any work submitted by a student in this course for academic credit will be the student's own work.

b. You are encouraged to study together and to discuss information and concepts covered in lecture and the sections with other students. You can give "consulting" help to or receive "consulting" help from such students. However, this permissible cooperation should never involve one student having possession of a copy of all or part of work done by someone else, in the form of an e mail, an e mail attachment file, a diskette, or a hard copy. Should copying occur, both the student who copied work from another student and the student who gave material to be copied will both automatically receive a zero for the assignment. Penalty for violation of this Policy can also be extended to include failure of the course and University disciplinary action.

c. During examinations, you must do your own work. Talking or discussion is not permitted during the examinations, nor may you compare papers, copy from others, or collaborate in any way. Any collaborative behavior during the examinations will result in failure of the exam, and may lead to failure of the course and University disciplinary action.

Disability Statement:

Accommodations for Students with Disabilities: The University of California Merced is committed to ensuring equal academic opportunities and inclusion for students with disabilities based on the principles of independent living, accessible universal design and diversity. I am available to discuss appropriate academic accommodations that may be required for student with disabilities. Requests for academic accommodations are to be made during the first three weeks of the semester, except for unusual circumstances. Students are encouraged to register with Disability Services Center to verify their eligibility for appropriate accommodations.

Topics:

Objects, C++ programming language, Data abstraction, Interfaces, Initialization and cleanup, Function overloading, Constants, Inline functions, References and Copy-Constructors, Operator overloading, Dynamic object creation, Inheritance and composition, Polymorphism and virtual methods, Templates.

Class/laboratory Schedule:

Lecture: T/TH 9:00-10:15am, Classroom: CLSSRM 116
Lab: See class schedule for the day/time of the section you are assigned

Midterm/Final Exam Schedule:

This schedule is subject to change, but is tentatively set as follows:
Midterm: Tuesday, March 29 (in class)
Final: Thursday, May 5 (in class)
Project presentation: Tuesday, May 10 3:00 - 6:00PM

Assessment/Grading Policy:

25% labs
5% lab attendance

5% quizzes
20% midterm
25% final exam
20% project

Contact Information:

Email: ahepworth@ucmerced.edu
Office: SE2 278

I will try to answer your emails within 48 hours. However, I may not be able to answer emails after 5:00 p.m. or during weekends/holidays.

TAs: 02L, 03L – Hoa Nguyen, hnguyen257@ucmerced.edu
        04L, 05L – Ghazal Zand, gzand@ucmerced.edu

Office Hours:

Instructor: Tuesday at 10:30-11:30am, or by appointment **(please see TAs for help with the labs)**
TA: Lab sessions will be used as office hours for TAs

Course Calendar:

Week	Lecture - Tues	Lecture - Thurs	Lab
01 (1/17 – 1/21)	1: Introduction to Objects	2: Programming in C++	No Lab
02 (1/24 – 1/28)	3: C in C++	4: C in C++	Lab 1
03 (1/31 – 2/2)	5: C in C++	6: Data Abstraction	Lab 2
04 (2/7 – 2/11)	7: Data Abstraction	8: Classes: Access control, constructors, and destructors	Lab 3
05 (2/14 – 2/18)	9: Inheritance/Derivation	10: References & Copy-Constructor	Lab 4
06 (2/21 – 2/25)	11: Overloading & Default Arguments	12: Polymorphism	Lab 5
07 (2/28 – 3/4)	13: Polymorphism	14: Polymorphism	Lab 6
08 (3/7 – 3/11)	15: Dynamic Object Creation	16: Static Classes and Name Spaces	Lab 7
09 (3/14 – 3/18)	17: Constants & Inline Functions	18: Midterm Review	Lab 8
10 (3/21 – 3/25)	Spring Break (No Class)	Spring Break (No Class)	Spring Break (No Lab)
11 (3/28 – 4/1)	**Mid-term (Mar 29)**	19: Operators	Lab 9
12 (4/4 – 4/8)	20: Templates	21: Exception Handling	Lab 10
13 (4/11 – 4/15)	22: Multiple Inheritance	23: Multiple Inheritance	Lab 11
14 (4/18 – 4/22)	24: Standard Library	25: Standard Library	Lab 12
15 (4/25 – 4/29)	26: STL Map & STL Unordered Maps: Maps Using Hash Tables	27: Final Review	Lab 13
16 (5/2 – 5/6)	Exam Prep (No Class)	**Final (May 5)**	
5/10	**Final Presentations**		