

COP3331 Object-Oriented Software Design

COP3331.002S21 Object-Oriented Software Design

Spring 2021 Course Syllabus

3 Credit Hours, Department of Computer Science and Engineering

Class Meeting Times: Mon, Wed 11:00AM - 12:15PM via Microsoft Teams

Instructor: Dr. Tempestt Neal

Instructor's Office: ENB 310

Office Hours: Tues, Wed 9A – 10:30A, Microsoft Teams

Office Phone: 813-396-9353 or Microsoft Teams

Email: tjneal@usf.edu

TA: Sreten Dedic (dedics@usf.edu), Office Hours: Thurs 3P – 5P

TA: Laureano Griffin (laureanog@usf.edu), Office Hours: Fri 9A – 11A

1 University Course Description

Design of a computer program using an Object-Oriented programming language. Extension of programming knowledge from a procedural language to an object-oriented language. Analysis of program requirements.

2 Course Prerequisites

CDA 3103 Minimum Grade: B (may be taken during same term) and COP 3514 Minimum Grade: B

3 Course Objectives and Learning Outcomes

At the successful completion of the course, students can expect to:

1. Know the basic computing terminology and the concepts behind object-oriented design.
2. Understand what classes and objects are.
3. Know how to design and implement classes and objects in C++.
4. Know how to analyze, design and write software using the object-oriented language C++.
5. Understand function overloading and parameter passing.
6. Understand the concepts of Abstract Data types, encapsulation, inheritance and polymorphism.
7. Know how to use arrays, vectors and how to use the Standard Template Library.

4 Microsoft Teams Recordings

In this class, software will be used to record live class lectures and discussions. As a student in this class, your participation in live class discussions will be recorded. These recordings will be made available only to students enrolled in the class, to assist those who cannot attend the live session or to serve as a resource for those who would like to review content that was presented. Students who prefer to participate via audio only will be allowed to disable their video camera so only audio will be captured. **However, enabling video is encouraged.**

5 Required Textbook

Mary Delamater and Joel Murach, *Murach's C++ Programming*, 2018, Mike Murach & Associates, Inc. ISBN 978-1-943872-27-5, Available [here](#).

Additional Resources:

- <http://www.cplusplus.com/>
- <https://www.programiz.com/cpp-programming>
- <https://www.learncpp.com/>
- <http://www.functionx.com/cpp/index.htm>
- <https://www.youtube.com/watch?v=vLnPwxZdW4Y>
- <http://www.stroustrup.com/C++.html>

6 Grading Policy

There will be four grading categories weighted as follows:

- **Exams: 30%**
 - Exam 1 (10%, Week of 2/8/21)
 - Exam 2 (10%, Week of 3/15/21)
 - Exam 3 (10%, 5/3/21)

- **Weekly Labs: 15%**

- **Flex Project: 40%**

In this course, you will have the opportunity to implement your own idea as a *Flex Project* (FP). The FP is intended to allow you to *flex* your programming muscles as you navigate through and incorporate object-oriented concepts. You are free to design the program as you wish, but you *must* design your code to support classes. Otherwise, the project is absolutely *flexible*. You can expect **two** FP submissions. The first submission will be a project proposal where you describe your program, its classes, and its functions. The second submission will be the complete program and the program's documentation.

In the first submission, you must detail the components of your program and how you plan to use **encapsulation** (chapter 14), **inheritance** (chapter 15), **polymorphism** (chapter 15), **static data members and functions** (chapter 16), **friend functions** (chapter 16), and **overload operators** (chapter 16). Your first submission may undergo several revisions with me prior to my approval. At that point, you are free to move to the next submission.

Once your first submission is approved, you should start programming your project according to the agreed upon project scope. You will have until the end of the course to complete your program. Your program will be graded according to your description provided in your proposal and how well you implemented OOP concepts. Points may be deducted for code reuse (use functions instead), poor indentation, forgetting to include header files when needed, and other elements of poor programming.

- **Class Participation: 15%**

Note:

- If you believe that an error has been made in grading, a request must be submitted to the TA **no later than one week (within 7 days)** after the assignment or exam is returned (**cc me on this request.**)
- There are **no guarantees** for extra credit.
- **Late assignments will not be accepted.** See late work policy below.
- Exam topics may vary depending on how quickly we cover material during class.
- Based on the material or amount of participation required to complete an assignment, some assignments may be worth more (or fewer) points than others. Please take note of this as each assignment is released.

Letter grades will be assigned according to the following scale (I **do not** curve grades!):

≥ 93.0	A
90.0-92.9	A-
87.0-89.9	B+
83.0-86.9	B
80.0-82.9	B-
77.0-79.9	C+
73.0-76.9	C
70.0-72.9	C-
60.0-69.9	D
< 60.0	F

7 Attendance Policy

All instruction and correspondences will be via Canvas and Microsoft Teams. Participation is **required** in all online assignments, discussions, and meetings.

8 Class Participation Policy

All students are expected to fully participate in class. Participation is a major component of this class, but how you participate is (in part) up to you. In-class discussions, contributions to canvas discussion boards, and correspondence with me will be factored into participation. Respect for the classroom space – helping to create an environment where other students can learn – will be considered, as well.

Participation counts for 15% of your grade in this course. Here are the behaviors that count: asking questions, answering questions, making comments, and constructively disagreeing with something in the text or said in class by me or another student. Value-added behaviors that will earn you participation points: comments that relate to material in the text, sharing relevant experiences, responding to something another student says (including answering a question they ask). Here are the behaviors to avoid: not listening, pretending to be listening while texting or surfing the web, making fun or otherwise berating something said by another person.

9 Course Schedule

(Subject to Change)

Week	Textbook Coverage	Topics
(1) 1/11	Chapters 1-2	Introduction, Setting up an IDE
(2) 1/18 (No class 1/18)	Chapters 3-4, 6	Making Decisions, Loops, Data types, Dynamic Typing
(3) 1/25	Chapters 5, 7-8	I/O Streams and Files, Functions, and Debugging
(4) 2/1	Chapter 9-10	Structures and Enumerations, STL Containers and Iterators
(5) 2/8	–	Exam 1 (Chapters 1-8)
(6) 2/15	Chapters 11-13	Algorithms, Arrays, C Strings, and Exceptions
(7) 2/22	Chapter 14	OOP: Classes, Encapsulation, UML (Release Project)
(8) 3/1	Chapter 15	OOP: Inheritance and Polymorphism
(9) 3/8	Chapter 16	OOP: Static Members and Functions, Overloading
(10) 3/15	Handouts	OOP Review, MVC Design Pattern, Exam 2 (Weeks 1-8)
(11) 3/22	Chapter 17	Pointers and Memory
(12) 3/29	Chapter 18	Templates / Project Proposals
(13) 4/5	Chapter 18 (Continued)	Templates
(14) 4/12	–	Spring Break
(15) 4/19	Handouts	Functional and Reactive Programming / Event-Based Programming
(16) 4/26	–	Project Presentations (Test Free Week)
5/3	–	Exam 3, 5/3/20 10A-12P (Weeks 1-16)

10 Standard University Policies

Policies about disability access, religious observances, academic grievances, academic integrity and misconduct, academic continuity, food insecurity, and sexual harassment are governed by a central set of policies that apply to all classes at USF. These may be accessed at: <https://www.usf.edu/provost/faculty/core-syllabus-policy-statements.aspx>

11 Course Policies

11.1 Late Work Policy

All assignments are due by 11:59:59PM on Canvas. No exceptions. Late work WILL NOT be accepted. **Please double check your submissions; should you submit the wrong files, I generally do not accept resubmissions.**

11.2 Extra Credit Policy

Extra credit is not guaranteed.

11.3 Grades of “Incomplete”

The current university policy concerning incomplete grades will be followed in this course. For USF Tampa undergraduate courses and USFSM undergraduate and graduate courses: An “I” grade may be awarded to a student only when a small portion of the student’s work is incomplete and only when the student is otherwise earning a passing grade. The time limit for removing the “I” is to be set by the instructor of the course. For undergraduate students, this time limit may not exceed two academic semesters, whether or not the student is in residence, and/or graduation, whichever comes first. For graduate students, this time limit may not exceed one academic semester. “I” grades not removed by the end of the time limit will be changed to “IF” or “IU,” whichever is appropriate.

11.4 Make-up Exams Policy

If a student cannot be present for an examination for a valid reason (validity to be determined by the instructor), a make-up exam will be given only if the student has notified the instructor in advance that s/he cannot be present for the exam. Make-up exams are given at the convenience of the instructor.

11.5 Final Examinations Policy

All final exams are to be scheduled in accordance with the University's final examination policy.

11.6 Canvas

This course will use USF's learning management system (LMS), Canvas. If you need help learning how to perform various tasks related to this course or other courses being offered in Canvas, please view the following videos or consult the Canvas help guides. You may also contact USF's IT department at (813) 974-1222 or help@usf.edu.

11.7 Attendance Policy

Students are expected to attend and participate in class. **We will spend a significant amount of time coding and understanding new programming concepts. You must participate in these activities to get the most of out this course.**

11.8 Proctorio

All students must review the syllabus and the requirements including the online terms and video testing requirements to determine if they wish to remain in the course. Enrollment in the course is an agreement to abide by and accept all terms. Any student may elect to drop or withdraw from this course before the end of the drop/add period. Online exams and quizzes within this course may require online proctoring. Therefore, students will be required to have a webcam (USB or internal) with a microphone when taking an exam or quiz. Students understand that this remote recording device is purchased and controlled by the student and that recordings from any private residence must be done with the permission of any person residing in the residence. To avoid any concerns in this regard, students should select private spaces for the testing. The University library and other academic sites at the University offer secure private settings for recordings and students with concerns may discuss location of an appropriate space for the recordings with their instructor or advisor. Students must ensure that any recordings do not invade any third-party privacy rights and accept all responsibility and liability for violations of any third-party privacy concerns. Setup information will be provided prior to taking the proctored exam. For additional information about online proctoring you can visit the online proctoring student FAQ at <http://www.usf.edu/innovative-education/resources/student-services/online-proctoring.aspx>

11.9 Turnitin.com

We will use Turnitin's plagiarism-detection service. In order to comply with privacy laws, students are not required to include personal identifying information, such as name, in the body of the document. Turnitin provides an originality report letting the instructor know how much of the assignment is original. Turnitin is an automated system which instructors may use to quickly and easily compare each student's assignment with billions of web sites, as well as an enormous database of student papers that grows with each submission. After the assignment is processed, as instructor I receive a report from turnitin.com that states if and how another author's work was used in the assignment. For a more detailed look at this process visit <http://www.turnitin.com>.

11.10 Professionalism Policy

Per university policy and classroom etiquette; mobile phones, iPods, etc. must be silenced during all lectures. **Please log-in on time** for all class meetings. Students who habitually disturb the class by talking, logging in late, etc., and have been warned may suffer a reduction in their final class grade.

11.11 End of Semester Student Evaluations

All classes at USF make use of an online system for students to provide feedback to the University regarding the course. These surveys will be made available at the end of the semester, and the University will notify you by email when the response window opens. Your participation is highly encouraged and valued.

12 COVID-19 Procedures

All students must comply with university policies and posted signs regarding COVID-19 mitigation measures, including wearing face coverings and maintaining social distancing during in-person classes. Failure to do so may result in dismissal from class, referral to the Office of Student Conduct and Ethical Development, and possible removal from campus. Additional details are available on the University's Core Syllabus Policy Statements page: <https://www.usf.edu/provost/faculty/core-syllabus-policy-statements.aspx>

13 Learning Support and Campus Offices - Tampa Campus

13.1 Tutoring Hub

The Tutoring Hub offers free tutoring in several subjects to USF undergraduates. Appointments are recommended, but not required. For more information, email asctampa@usf.edu

13.2 Writing Studio

The Writing Studio is a free resource for USF undergraduate and graduate students. At the Writing Studio, a trained writing consultant will work individually with you, at any point in the writing process from brainstorming to editing. Appointments are recommended, but not required. For more information or to make an appointment, email writingstudio@usf.edu

13.3 Counseling Center

The Counseling Center promotes the wellbeing of the campus community by providing culturally sensitive counseling, consultation, prevention, and training that enhances student academic and personal success. Contact information is available online.

13.4 Center for Victim Advocacy

The Center for Victim Advocacy empowers survivors of crime, violence, or abuse by promoting the restoration of decision making, by advocating for their rights, and by offering support and resources. Contact information is available online.