

COP 3503C Programming Fundamentals 2

Course Syllabus

Please read the following syllabus to understand important information about this course.

Course Description

This course is a reinforcement of concepts covered in COP3502, as well as a look at some more advanced programming topics. In addition, we will look at creating programs which may be a bit more complex than those you have worked on in the past, and strategies for dealing with applications as they increase in complexity and/or size.

In the same way that you learn core programming concepts such as variables, loops, and functions, this course will cover similar core topics as from the field of visual arts: How to store visual data, how to draw that data to the screen, the basic building blocks of 2D and 3D graphics as well as the tools used to create assets for use in games and interactive applications. We will build a visual vocabulary which will be directly applicable to projects in this semester, as well as other courses you may take in the future.

Course Objectives

By the end of this course, you should be able to:

1. Build and execute C++ programs from command-line and from within an IDE
2. Fix problems in an application by utilizing debugging tools and processes
3. Utilize testing in the development of software applications
4. Read and write data from binary and text files
5. Implement classes which adhere to the concepts of object-oriented programming, including abstract and derived classes
6. Examine the uses of dynamic memory allocation
7. Utilize pointers in the creation of memory-efficient data structures such as linked lists, stacks and queues
8. Demonstrate the use of templates to create generic classes
9. Demonstrate an ability to solve large programming problems by breaking them into smaller pieces

Semester Structure

The semester (and Canvas course) is structured by modules, one per week. In addition to the weekly lectures, each module will contain some combination of assigned readings, assignments to work on (some of which may span multiple modules), and quizzes/exams.

Semester Modules

Module 1	Introduction to C++
Module 2	Classes
Module 3	Pointers and References
Module 4	Dynamic Memory in Classes
Module 5	Templates and Data Structures
Module 6	Debugging and Command-Line Compiling
Module 7	File I/O
Module 8	Binary File I/O (Midterm exam)
Module 9	Inheritance
Module 10	Maps and Iterators
Module 11	Writing Larger Programs
Module 12	Libraries
Module 13	Sorting
Module 14	Function Pointers
Module 15	Wrap Up
	Finals Week (In Spring/Fall)

Contact Information

Instructor
Joshua Fox

Email

joshuafox@ufl.edu

Office Hours

Office hours held via Zoom

11:00-12:30 Mondays and Wednesdays

Course Requirements

Required Textbook

Programming in C++, Frank Vahid and Roman Lysecky

Available through zyBooks, instructions can be found in the first module. This book also includes access to zyLabs, which are used for many programming assignments in the course.

Required Software & Hardware

A C++ compiler. A guide for installing one, and the requirements for this course, can be found in the first module.

Zoom (Links to an external site.) is required for attending in-class lectures and office hours.

A webcam is required for proctored exams. Your laptop (if you have one) should have one already. If that's not the case, you will need to obtain one, even a basic one will suffice. They are available for relatively low cost.

Honorlock is required for quizzes and exams. A guide for this can be found in the first module.

Recommended Materials

Think Like a Programmer, An Introduction to Creative Problem Solving

Anton Spraul, ISBN: 978-1593274245

This is a book that focuses not on how to write code in any one language, but instead looks at how to get into the programming mindset. Programming is about solving problems, and thinking about those problems in ways you might not have done before.

A good text editor. We often have to view or edit files containing all sorts of data, and simple editors like Notepad are insufficient. There a lot of them out there, use whichever you prefer. A few popular ones:

- Notepad++ (my personal favorite)

- Atom
- Sublime Text
- Vim

Prerequisites

COP3502C - Programming Fundamentals I and MAC2311 both with minimum grades of C.

Minimum Technology Requirements

The University of Florida expects students entering an online program to acquire computer hardware and software appropriate to their degree program. Most computers are capable of meeting the following general requirements. A student's computer configuration should include:

- Webcam
- Microphone
- Broadband connection to the internet and related equipment (cable/DSL modem)
- Microsoft Office Suite installed (provided by the university)

Individual colleges may have additional requirements or recommendations, which students should review before starting their program.

Minimal Technical Skills

To complete your tasks in this course, you will need a basic understanding of operating a computer and using word processing software.

Materials/Supply Fees

There is no supply fee for this course.

[Honorlock](#)

Honorlock is an online proctoring service that allows students to take exams on-demand 24/7. There are no scheduling requirements or fees.

You will need a laptop or desktop computer with a webcam, a microphone, and a photo ID. The webcam and microphone can be either integrated or external USB devices.

Honorlock requires that you use the [Google Chrome](#) browser and that you must add the Honorlock extension to Chrome.

For further information, FAQs, and technical support, please visit [Honorlock](#).

Zoom

Zoom is an easy-to-use video conferencing service available to all UF students, faculty, and staff that allows for meetings of up to 100 participants.

You can find resources and help using Zoom at the [University of Florida's Zoom](#) website.

Grading Policy

Grade Assessment

Over the course of this semester, you may earn up to 1000 total points by completing various assignments and exams.

Assignment	Points	Percentage of Final Grade
Assignments	300	30%
Projects	300	30%
Quizzes	200	20%
Midterm Exam	100	10%
Final Exam	100	10%
Total	1000	100%

Grade Scheme

At the end of the semester, your final grade percentage is the result of this formula:

That percentage translates to a final letter grade based on this scheme:

Range	Grade	Grade Points
100% to 93.4%	A	4.00
<93.4% to 90.0%	A-	3.67

Range	Grade	Grade Points
<90.0% to 86.7%	B+	3.33
< 86.7 % to 83.4%	B	3.00
< 83.4 % to 80.0%	B-	2.67
< 80.0 % to 76.7%	C+	2.33
< 76.7 % to 73.4%	C	2.00
< 73.4 % to 70.0%	C-	1.67
< 70.0 % to 66.7%	D+	1.33
< 66.7 % to 63.4%	D	1.00
< 63.4 % to 60.0%	D-	0.67
< 60.0 % to 0.0%	E	0.00

See the [current UF grading policies](#) for more information.

Grade Posting Timeline

Grades for assignments will be posted to the Gradebook within one (1) week of the assignment deadline.

Grade Challenges

If a mistake was made on one of your grades, or if you feel a question on an exam was in error, you have one (1) week to bring it to my attention. This is to avoid a wave of request for changes to be made at the end of a semester, long after that part of the class has passed.

Grade Questions and the Chain of Command

If you have questions about a grade, please ask your TA/PM first. Managing hundreds of students is not an easy task, and one way I do it is through division of labor. Please ask them first, and if there is an issue they cannot resolve, they will ask me about it.

End of Semester Grade Boosts or Grade Rounding

I will not round or arbitrarily increase your grade for any reason. If you think a mistake was made on a graded assignment or an exam question, bring it to my attention and—if it is a mistake—I will correct it, generally in your favor! Aside from that, your final grade is what you've earned over the course of the semester. All requests asking for additional points or opportunities to gain points beyond what was already assigned will be denied.

Deadline

Deadlines in this course are final, and submissions after the deadline will not be accepted. Ultimately, it is your responsibility to ensure that assignments are completed on time, and according to specifications. Students are given ample time in this course to complete each assignment. If you wait until the last day to start something, and something goes wrong on that last day, it is not my responsibility. (I've been there before as a student, and I had to live with the consequences.)

Exceptions can be made for significant hardships as dictated by university policy (e.g. medical issues, hurricanes, death in the family, etc) with supporting documentation. In addition, students may be granted one (1) single exception to this, according to the following section.

Single-Use Late Submission Exception

You may turn in one (1) assignment up to 24 hours after the deadline, with a grade penalty of 50% of the final score for the assignment (so a 100 would become a 50, a score of 42 would become a 21, etc). This is only applicable to the most recent assignment; quizzes and exams are not eligible for this.

You may use this opportunity only once throughout the entire semester, and you **MUST** notify me or a course assistant within the 24-hour period following the deadline to request this exception. After this 24-hour period, no requests for late submissions will be granted (i.e. you can't "save" this until the end of the semester), and once you use it, you've used it.

This policy is intended reduce the impact of some "catastrophic mistake" on your part. Realize the the day after a deadline that you submitted the wrong file? Forgot to include one of your code files in the submission? Fell asleep and napped right through the deadline?

Use this, and make an effort to avoid repeating that same mistake (either in this course, or in a future course).

Extra Credit

Up to 20 points (a maximum of 2%) of extra credit can be earned in this course. Some assignments have extra credit in them, and there may be other ways to earn extra credit throughout the semester, often in the form of research studies. There is an assignment called Extra Credit (it can be found in the first module) which will be used to track the points you have earned throughout the semester.

Quiz and Exam Policy

Quizzes and exams will be taken on Canvas using Honorlock. There is a practice quiz that you should take to ensure that you have Honorlock setup, ideally before you attempt to take a real quiz or exam.

Unless otherwise noted, quizzes and exams are closed book, with no additional resources or materials allowed.

Code Policy

In this course, students are expected to write their own code for all assignments. You are the one who is being tasked with coming up with a solution to the various programming problems in this course—not your friend, not your roommate, not a stranger on the Internet. The reasoning behind this is that later in your educational career (or if you end up in industry) it will be expected that you are capable of solving problems on your own, if and when the need arises. Even in a team-based environment, each member of that team must be capable of carrying their own weight.

Unless otherwise noted, there are no group or collaborative assignments in this course. When working on assignments, discussion of those assignments with your classmates is not only inevitable, but it is strongly encouraged! (We often learn very effectively in social environments.) That said, you should discuss the problem in high level terms, not telling someone else (or being told) how to write the code. Here are some examples of what could be considered acceptable and unacceptable:

Acceptable

- Talking about the problem
- Using a whiteboard (or paper, or something similar) to draw out the problem
- Looking at someone else's code to help them identify or fix a bug, AFTER you have already completed that portion for yourself

Unacceptable

- Splitting an assignment's work into multiple parts with other students
- Asking someone to send you their code
- Copying someone else's code into your own submission
- Giving another student your code for ANY reason—once you send your code to someone else, you have no control over where it ends up
- Giving another student step-by-step instructions on how to structure a solution to a problem—it's their job to write their code, not yours
- Looking up solutions to problems and using those solutions yourself verbatim
- Viewing solutions to the problems and mimicking those solutions—ask me, or one of the assistants in this course, for help

Consequences for Honor Code Violations

If you are not capable of completing an assignment on your own, that's okay. Lots of things in life can take time to really “click” for us, and we all learn at different rates. Under no circumstances should you ever consider cheating—that is, submitting someone else's work as your own—as an option. The consequences for doing so will be far worse than if you simply did not do the assignment.

Students will complete this course with honor and integrity, or not at all. Submissions which are believed to be not entirely a student's own work will be reported to administration for disciplinary action. Students who commit any of the unacceptable acts listed above will also be reported. In ALL cases, I will recommend the following sanctions be imposed on that student or students:

1. A failing grade (an 'E') for the course
2. That you not be allowed to drop the course for any reason

Regret Clause

If you submit an assignment, in which you engaged in some of the unacceptable practices listed above (or something similar), you may bring it to my attention within 72 hours of the submission. If you do so, I will assign a failing grade of 0 for the assignment, and you will not be reported to the administration.

Netiquette and Communication Courtesies

It is important to recognize that the online classroom is in fact a classroom, and certain behaviors are expected when you communicate with both your peers and your instructors. These guidelines for online behavior and interaction are known as netiquette.

Security

Remember that your password is the only thing protecting you from pranks or more serious harm.

- Don't share your password with anyone.
- Change your password if you think someone else might know it.
- Always log out when you are finished using the system.

General Guidelines

When communicating online:

- Treat the instructor with respect, even via email or in any other online communication.
- Always use your professor's proper title: Dr. or Prof., or if you are unsure use Mr. or Ms.
- Unless specifically invited, don't refer to a professor by their first name.
- Use clear and concise language.
- Remember that all college-level communication should have correct spelling and grammar.
- Avoid slang terms such as "wassup?" and texting abbreviations such as "u" instead of "you."
- Use standard fonts such as Times New Roman and use a size 12- or 14-point font.
- Avoid using the caps lock feature AS IT CAN BE INTERPRETED AS YELLING.
- Limit and possibly avoid the use of emoticons like :) .
- Be cautious when using humor or sarcasm as tone is sometimes lost in an email or discussion post and your message might be taken seriously or be construed as being offensive.
- Be careful with personal information (both yours and others).
- Do not send confidential information via email.

Email

When you send an email to your instructor, teaching assistant, or classmates:

- Use a descriptive subject line.
- Be brief.
- Avoid attachments unless you are sure your recipients can open them.
- Avoid HTML in favor of plain text.
- Sign your message with your name and return email address.
- Think before you send the email to more than one person. Does everyone really need to see your message?
- Be sure you REALLY want everyone to receive your response when you click, "Reply All."

- Be sure that the message author intended for the information to be passed along before you click the “Forward” button.

Discussion Boards

When posting on the discussion board in your online class:

- Check to see if anyone already asked your question and received a reply before posting to the discussion board.
- Remember your manners and say please and thank you when asking something of your classmates or instructor.
- Be open-minded.
- If you ask a question and many people respond, summarize all posts for the benefit of the class.
- When posting:
 - Make posts that are on-topic and within the scope of the course material.
 - Be sure to read all messages in a thread before replying.
 - Be as brief as possible while still making a thorough comment.
 - Don't repeat someone else's post without adding something of your own to it.
 - Take your posts seriously. Review and edit your posts before sending.
 - Avoid short, generic replies such as, “I agree.” You should include why you agree or add to the previous point.
 - If you refer to something that was said in an earlier post, quote a few key lines so readers do not have to go back and figure out which post you are referring to.
 - Always give proper credit when referencing or quoting another source.
 - If you reply to a classmate's question make sure your answer is correct, don't guess.
 - Always be respectful of others' opinions even when they differ from your own.
 - When you disagree with someone, you should express your differing opinion in a respectful, non-critical way.
 - Do not make personal or insulting remarks.
 - Do not write anything sarcastic or angry, it always backfires.
 - Do not type in ALL CAPS, if you do IT WILL LOOK LIKE YOU ARE YELLING.

Zoom

When attending a Zoom class or meeting:

- Do not share your Zoom classroom link or password with others.
- Even though you may be alone at home, your professor and classmates can see you! While attending class in your pajamas is tempting, remember that wearing clothing is not optional. Dress appropriately.
- Your professor and classmates can also see what is behind you, so be aware of your surroundings.

- Make sure the background is not distracting or something you would not want your classmates to see.
 - When in doubt use a virtual background. If you choose to use one, you should test the background out first to make sure your device can support it.
 - Your background can express your personality, but be sure to avoid using backgrounds that may contain offensive images and language.
- Mute is your friend, especially when you are in a location that can be noisy. Don't leave your microphone open if you don't have to.
- If you want to speak, you can raise your hand (click the "raise hand" button at the center bottom of your screen) and wait to be called upon.

UF Policies

University Policy on Accommodating Students with Disabilities

Students with disabilities requesting accommodations should first register with the [Disability Resource Center](#) (352-392-8565) by providing appropriate documentation. Once registered, students will receive an accommodation letter that must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

University Policy on Academic Conduct

UF students are bound by The Honor Pledge, which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity by abiding by the Honor Code." On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The Student Honor Code and Student Conduct Code specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

Plagiarism

The [Student Honor Code and Student Conduct Code](#) states that:

"A Student must not represent as the Student's own work all or any portion of the work of another. Plagiarism includes but is not limited to:

- Stealing, misquoting, insufficiently paraphrasing, or patch-writing.
- Self-plagiarism, which is the reuse of the Student's own submitted work, or the simultaneous submission of the Student's own work, without the full and clear acknowledgment and permission of the Faculty to whom it is submitted.

- Submitting materials from any source without proper attribution.
- Submitting a document, assignment, or material that, in whole or in part, is identical or substantially identical to a document or assignment the Student did not author."

Software Use

All faculty, staff, and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

Getting Help

Technical Difficulties

For help with technical issues or difficulties with Canvas, please contact the UF Computing Help Desk at:

- <http://helpdesk.ufl.edu>
- 352-392-HELP (4357)
- Walk-in: HUB 132

Any requests for make-ups (assignments, exams, etc.) due to technical issues should be accompanied by the ticket number received from the UF Computing Help Desk when the problem was reported to them. The ticket number will document the time and date of the problem. You should email your instructor within 24 hours of the technical difficulty if you wish to request a make-up.

Health and Wellness

- U Matter, We Care: If you or someone you know is in distress, please email umatter@ufl.edu, call 352-392-1575, or visit [U Matter We Care](#) to refer or report a concern, and a team member will reach out to the student in distress.
- Counseling and Wellness Center: Visit the [UF Counseling & Wellness Center](#) website or call 352-392-1575 for information on crisis services and non-crisis services.
- Student Health Care Center: Call 352-392-1161 for 24/7 information to help you find the care you need, or visit the [UF Student Health Care Center](#) website.

- University Police Department: Visit the [UF Police Department](#) website or call 352-392-1111 (or 9-1-1 for emergencies).
- UF Health Shands Emergency Room/Trauma Center: For immediate medical care in Gainesville, call 352-733-0111, or go to the emergency room at 1515 SW Archer Road, Gainesville, FL 32608; Visit the [UF Health Shands Emergency Room/Trauma Center](#) website.

Academic and Student Support

- **Career Connections Center:** For career assistance and counseling services, visit the [UF Career Connections Center](#) website or call 352-392-1601.
- **Library Support:** For various ways to receive assistance concerning using the libraries or finding resources, visit the [UF George A. Smathers Libraries Ask-A-Librarian](#) website.
- **Teaching Center:** For general study skills and tutoring, visit the [UF Teaching Center](#) website or call 352-392-2010.
- **Writing Studio:** For help with brainstorming, formatting, and writing papers, visit the [University Writing Program Writing Studio](#) website or call 352-846-1138.

Course Evaluations

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available on the GatorEvals [Providing Constructive Feedback](#) FAQ page. Students will be notified when the evaluation period opens and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via the [GatorEvals](#) website. Summaries of course evaluation results are available to students at the [GatorEvals Public Results](#) page. More information about UF's course evaluation system can be found at the [GatorEvals Faculty Evaluations](#) website.

Tips for Success

Taking a course online can be a lot of fun! Here are some tips that will help you get the most of this course while taking full advantage of the online format:

- Schedule "class times" for yourself. It is important to do the coursework on time each week. You will receive a reduction in points for work that is turned in late!
- Read ALL of the material contained on this site. There is a lot of helpful information that can save you time and help you meet the objectives of the course.
- Print out the Course Summary located in the Course Syllabus and check things off as you go.
- Take full advantage of the online discussion boards. Ask for help or clarification of the material if you need it.
- Do not wait to ask questions! Waiting to ask a question might cause you to miss a due date.
- Do your work well before the due dates. Sometimes things happen. If your computer goes down when you are trying to submit an assignment, you'll need time to troubleshoot the problem.
- To be extra safe, back up your work to an external hard drive, thumb drive, or through a cloud service.

Honorlock Online Proctoring

In order to maintain a high standard of academic integrity and assure that the value of your University of Florida degree is not compromised, course exams will be proctored. Some students will take their exams online and will be proctored by Honorlock. You will take your exam electronically using the course website. You **do not** need to register for your exam. However, you will need to have installed and enabled the Google Chrome Honorlock extension prior to taking your exams. You will need a webcam, speakers, microphone, laptop or desktop computer, and a reliable internet connection to take your exams. Wireless internet is not recommended. You may also need a mirror or other reflective surface. Google Chrome is the only supported browser for taking exams in Canvas.

Before Your Exam

Prior to each exam and in the same environment you plan to take the exam, review the [Honorlock Guidelines](#) (PDF), and go to [Honorlock Support](#) to run a system check. This process takes just a few minutes and is completely free. If your course offers an Honorlock Practice Quiz, it is strongly recommended that you take it to practice using Honorlock before your exams.

Important: If you are unable to take an exam because of a technical glitch on your end, that is your responsibility. However, if you do experience technical difficulties during the exam, Honorlock's support menu will be visible on-screen for you to contact a support agent.

Getting Help

Honorlock offers 24/7/365 technical support to assist students before, during, and after exams. If you experience any trouble with Honorlock, begin a live chat on the [Honorlock Support](#) page, call 844-243-2500, or email Support@Honorlock.com.

Privacy and Accessibility Policies

There are federal laws protecting your privacy with regards to grades earned in courses and on individual assignments. For more information, please see: registrar.ufl.edu/ferpa

For information about the privacy policies of the tools used in this course, see the links below:

- Honorlock
 - [Honorlock Privacy Policy](#)
 - [Honorlock Accessibility](#)
- Instructure (Canvas)
 - [Instructure Privacy Policy](#)
 - [Instructure Accessibility](#)
- Microsoft
 - [Microsoft Privacy Policy](#)
 - [Microsoft Accessibility](#)
- YouTube (Google)
 - [YouTube \(Google\) Privacy Policy](#)
 - [YouTube \(Google\) Accessibility](#)
- Zoom
 - [Zoom Privacy Policy](#)
 - [Zoom Accessibility](#)