

COP 3502C Section 2

Computer Science I - Spring 2022 Syllabus

Course Prerequisites: COP 3223 (Introduction to C Programming)

Information	Section 2
Class Time	MWF 12:30 pm - 1:20 pm
Class Location	CB1 - 104
Teaching Assistants	Daniel Gordon Brandon Gray Ansh Parikh Ksenia Soulakova

Course Web Page: <http://www.cs.ucf.edu/courses/cop3502/spr2022>

Lecturer: Arup Guha

Office: HEC-240

Email: dmarino@ucf.edu

Office Hours: **Will Be Posted on the Course Web Page the first week of class.**

I do NOT check my WebCourses email. Please email me at
dmarino@ucf.edu to contact me.

Teaching Assistants and Office Hour Information:

Will Be Posted on the Course Web Page the first week of class.

Course Objectives

- 1. Introduce known algorithms.**
- 2. Provide software skills in C.**
- 3. Introduce mathematical tools necessary to analyze algorithms.**
- 4. Introduce the problem solving technique of recursion.**
- 5. Introduce implementing data structures from primitive constructs in C.**
- 6. Introduce search and sorting techniques.**

Reference Books: Any book on data structures will do for this course. The following book is available in the bookstore: Data structures, algorithms & software principles in C, Thomas B. Standish, Addison – Wesley (ISBN – 0-201-59118-9). There are a detailed set of course notes and sample programs that should be sufficient in explaining the material to most students.

Most Critical Course Items

1. **COP 3502 is a very challenging class.** The average student should expect to spend 12 hours a week on the course. The upside to the course being challenging is that if you can get through this course with mastery of the skills taught in it, you are virtually guaranteed to graduate with a computer science (CS) degree from UCF, since mastering the course material will give you all the necessary skills in terms of diligence and problem solving that you'll need to properly handle future CS courses. (If you are in another major, mastering the skills in this course will allow you to handle most future coding challenges you may face.) You don't earn those skills for free. You earn them by putting in a great deal of effort. Make sure to plan a schedule that allows for this time consistently.

2. All of my course materials content wise (notes, sample programs, program and exam solutions, etc.) **EXCEPT VIDEOS** will be posted online via my course web page at:

<http://www.cs.ucf.edu/courses/cop3502/spr2022>

At a minimum students should visit the course web page every Monday, Wednesday and Friday for added materials.

3. Webcourses will be used to handle the submission of assignments and posting grades. In addition, copies of old lecture videos (from Summer 2020) will be available for those who miss class for any reason. At a minimum students should visit Webcourses every Monday, Wednesday and Friday for class and other announcements.

4. **If you are a Computer Science major, you must pass the Foundation Exam within one year of passing Computer Science I. Since the exam is offered once a semester (first Saturday of every semester), that means that a student will have a maximum of 3 attempts at passing the exam. In particular, if a student passes this course (COP 3502 Spring 22), they are eligible to take the Foundation exam in Summer 2022 (May 2022), Fall 2022 (August 2022), and Spring 2023 (January 2023). If a student elects not to take an exam one of these times, their eligibility is NOT extended at all. Eligibility can only be extended via the appeal process and is typically only given if a student was incapable of attending the exam due to a health/family/military reason. A student not passing the exam in this time frame gets redirected out of Computer Science.**

Tentative Grading Procedures

The final letter grade will be based upon the seven items listed below. **Plus/minus grades will be issued, when deemed appropriate.**

Item	Weight
Week 1 Programming Assignment	2%
Individual Programming Assignments (6)	24% total (4% for each)
Recitation Programs (choose 2 of 4)	8% total (4% for each of these two)
Recitation Group Reports	10%
Quizzes (4)	28% each (7% for each)
Final Exam*	28%

Also, in order to pass the class you must earn at least a 40% on the final exam. I reserve the right to either enforce or not enforce this clause, based on the individual situation.

Rather than use a "strict" 90 – 100 grading scale, I adjust my grade lines to account for difficult exams. My webpage discusses this process in detail.

Note: This grading breakdown is subject to change. Any changes will be discussed in course videos and Webcourses announcements. As previously mentioned, in the past I made changes to the class syllabus based on class behavior. In some classes I changed the syllabus to include class attendance in the middle of the semester and as previously mentioned, I threw out an entire exam grade due to academic misconduct. In classes where I've had a vast majority of responsible students, I have not needed to make any changes to the class grading system.

Programming Assignments (Week 1 Assignment and Individual Assignments)

All programming assignments will be turned in over WebCourses. All programs must be done in C and **must be compatible** with the compiler on the Eustis system you will be given access to. Programs must be done individually with course staff help only. **Collaboration is not allowed on any programming assignment.** (A further explanation of academic misconduct on programming assignments is discussed on my main UCF web page. Please read this.) **Official assignment due dates will be posted on WebCourses.** (Please look these up yourself instead of asking a friend.)

Note: All of the individual programming assignments this semester were used last semester. If I detect any wide spread cheating (getting assistance from last year's students or using solutions posted last year in any way) on these assignments, I RESERVE THE RIGHT TO NOT COUNT THE PROGRAM GRADES FOR ALL STUDENTS IN THE COURSE AND SOLELY BASE COURSE GRADES ON THE QUIZZES AND FINAL EXAM.

My hope is that I can simply trust all students to do their own work and that the assignments will provide a valuable learning resource to you. As long as you all as a class play by the rules, I will also, and keep the syllabus (how I count grades) as it is.

THE ONLY VALID DUE DATES ARE THOSE POSTED ON WEBCOURSES.

My personal advice is to submit all assignments **AT LEAST THREE HOURS BEFORE THE POSTED DEADLINE**. Too often, students wait till the last minute only to miss the deadline due to network issues. **IN CASES WHERE A SUBMISSION IS LATE (EVEN BY A SECOND), A GRADE OF ZERO WILL BE GIVEN TO THE SUBMISSION.**

Community Service Opportunity

If students want to get an automatic perfect 100% for the last programming assignment, which is worth 4% of the course grade, students may perform 5 hours (or more) of community service **with a registered 501 (c)(3) organization**. If you take this option, then you will automatically earn 100% for Program 6 grade. In order to get this credit, you must complete the community service and turn in the requisite form signed directly to me (in my hand) by **April 6, 2022**. All grades for the community service will be posted in the P6 column by April 7, 2022. If you don't see your grade there by April 8th, then please do P6.

Recitation - Programs and Group Write Ups

Each recitation meeting will consist of one of the following formats:

- (a) You'll be asked to work on a programming problem from the website open.kattis.com.
- (b) A lecture format where the TA goes over some material.
- (c) You'll be asked to work on some practice problems (similar to past exam questions) on paper.
- (d) A final exam review (format up to the TA)

(a) On four weeks of recitation, a programming problem will be given. Each of these is on the website open.kattis.com, but students may be required to turn in more than their source code. Directions will be given in recitation. (In addition, further restrictions may be given on the method of solution and the efficiency of the solution beyond getting an accepted status on Kattis.) Students are expected to submit two out of four of these via Webcourses for credit. (The lowest two grades will be dropped.)

(b) On the first and sixth weeks of recitation, the TA will cover some review material in a standard lecture format.

(c) On most of the other weeks of recitation, practice problems (on paper) will be given for students to work on. After the first quiz, groups will be assigned based on quiz performance. **ALL STUDENTS IN A GROUP WILL BE FROM THE SAME RECITATION.**

Some groups will have either a TA or ULA assigned to them. Each group will be required to meet outside of recitation once a week to fortify course concepts. To ensure groups are meeting, groups are required to take and submit weekly meeting notes. The group grades will be based on these notes. **If a group forgets to submit these notes, unfortunately, they'll earn a 0 even if they met. All students in a group will receive the same grade.**

In my past research, groups who follow my directions tend to increase their course grades by an average of 10%. I'll give my directions and groups are the free to do what they want. ULAs and TAs will be assigned to the students who struggle on the first quiz. The idea here is that the

ULA/TA will ensure that the group follows my directions and those groups are the ones that are in most need of structured review.

(d) For the last recitation, I allow the TAs to plan a review for their students as they see fit!

Quizzes

Four quizzes will be given in class. Limited aids may be provided by the instructor (list of C library functions and formulas) for these quizzes as necessary. **No calculators or electronic aids will be allowed for quizzes.** Since our class time is short (only 50 minutes) quizzes will be relatively short and each will only be worth 7% of the course grade. This means that one can recover from one bad quiz performance fairly easily.

Final Exam

The final exam will be comprehensive. As previously mentioned, in order to pass the course with a C or higher, a student must earn at least 40% on the final exam. (The instructor reserves the right to waive this requirement if the final exam is deemed to be exceedingly difficult.) Students will be allowed to use some notes as aids during the exam. This will be discussed in the last lecture class of the semester.

Correcting Incorrectly Posted Grades/ Regrades

Students have one week after a grade is posted on WebCourses to ask for a regrade on an assignment or quiz. Due to the short time frame, there are no regades on the final exam. **ONLY the course instructor can regrade assignments, quizzes or exams. Do NOT ask teaching assistants to do so.**

If a grade is entered incorrect, students have until the last day of class, April 25, 2022 at 5 pm, to request that the grade get fixed. In this case, either a teaching assistant or course instructor can make the change.

The purpose of this rule is to avoid situations where students approach me after grades have been turned in with incorrectly recorded grades from a long time ago. Changing these grades is difficult and time consuming and it's in everyone's best interests if grades are corrected as soon as possible.

In addition, in many cases, students try to do this after the fact, if they see they are close to the next letter grade after the class is completed. This kind of behavior should be discouraged. Rather, regrade requests ought to occur very shortly after a grade is posted.

I am hoping that adding this policy will *encourage* students to step forward immediately in situations where a grade is recorded incorrectly or a student genuinely believes that a grading error has occurred. Taking care of these cases early is ideal for all students AND staff.

Keep in mind that in many instances, a grade won't be changed simply because of the grading criteria that was applied. One may think that a particular response is worth some number of points and that may not be consistent with the grading criteria. In these cases (many of the cases presented to me), I don't change a student's grade.

Tentative Schedule

Week	Monday	Wednesday	Friday	Recitation
Jan 10	DMA	DMA	DMA	Intro/C Review
Jan 17	MLK DAY	Quiz #1	Recursion	Kattis Program #1
Jan 24	Recursion	Recursion	Recursion	Rec Problems
Jan 31	Recursion	Linked Lists	Linked Lists	Kattis Program #2
Feb 7	Stacks	Stack Apps	Queues	Quiz 2 Review
Feb 14	Queues for BFS	SLM	Quiz #2	Sum Preparation
Feb 21	Big Oh Notation	Experimental R.T.	Sums	Alg. Problems
Feb 28	Recurrences	Recurrences	n^2 sorts	Rec Rel Problems
Mar 7	SPRING	BREAK	NO	CLASS
Mar 14	Merge Sort	Quick Sort	Quiz #3	Kattis Program #3
Mar 21	Binary Trees	Binary Trees	Binary Trees	Tree Problems
Mar 28	AVL Trees	AVL Trees	Tries	Trie Problems
Apr 4	Heaps	Hash Tables	Quiz #4	Heap/Hash Probs
Apr 11	Base Conversion	Bitwise Operators	Bitwise Ops Probs	Kattis Program #4
Apr 18	Binary Search	Foundation Exam Information	Backtracking	Final Exam Review
Apr 29 (Friday)	Final Exam Review		FINAL EXAM 10AM - 1PM	

Tentative Programming Assignment Topics and Due Dates:

Program	Topic	Program	Tentative Due Date
0	Strings	Deck	1/14/2022, L (1/19/22)
1	Dynamic Memory Allocation	Smoothie	1/28/2022
2	Recursion	Tree House Walking	2/11/2022
3	Linked Lists	Lottery	2/25/2022
4	Sorting	Scholar	3/25/2022
5	Binary Trees	Word Sort	4/8/2022
6	Binary Heaps	Priority Hair Salon	4/22/2022

- **This schedule is tentative. The only items guaranteed to be on the listed dates are the exams. All other items may be shifted based on how the class actually runs. These details will generally only be discussed in the videos and Webcourses announcements.**
- **Note: All program and recitation program due date/times will ONLY be posted on Webcourses. Please go there to find when each of these assignments is due.**
- **I don't know how I will handle things if classes are forced online. If that happens, please pay very careful attention to all announcements over Webcourses!!! It's likely that in this case, non-trivial changes will be made to the syllabus, and more importantly to the quiz and exam formats.**