COP 3502H Syllabus Section 204
Honors Computer Science I - Spring 2024

Course Prerequisites: COP 3223 (Introduction to C Programming)
Class Time: TR 12:00 - 1:15 pm
Class Location: HS1-246
Course Web Page: http://www.cs.ucf.edu/~dmarino/ucf/cop3502h/spr24
Lecturer: Arup Guha
Office: HEC – 240 **Email:** dmarino@ucf.edu
Phone Number: 407-823-1062
Office Hours: Listed on course web page (both Zoom and in person)

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

Teaching Assistant Contact Information and Office Hour Information:
Will Be Posted on the Course Web Page the first week of class.

Course Objectives

1) Introduce known algorithms and general problem solving techniques.
2) Provide software skills in C.
3) Introduce elementary data structures.
4) Introduce searching and sorting techniques.

Recommended Book: Data structures, algorithms & software principles in C, Thomas B. Standish, Addison – Wesley (ISBN – 0-201-59118-9) (Note: Any book on data structures ought to be sufficient, since none of the assignments will come directly from the book.)

***Tentative* Grading Procedures**

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

Item	Percentage
Exam #1	15
Exam #2	20
Final Exam	25
Individual Programming Assignments	25 total - 2, 3, 4, 4, 4, 4, 4
Final Project (Pairs)	8
Miscellaneous	7

Also, in order to pass the class you must earn at least a 40% on the final exam. (Thus, if you have a 75% in the course but earn a 30% on the final, you still get a C- in the course even though your percentage may qualify for a B.) 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: http://www.cs.ucf.edu/~dmarino/ucf/transparency/.

Note: This grading breakdown is subject to change. Any changes will be discussed in class.

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.) will be posted online via my course web page at:

https://www.cs.ucf.edu/~dmarino/ucf/cop3502h/spr24/

At a minimum students should visit the course web page three times every week for added materials.

3. Webcourses will be used to handle the submission of assignments and posting grades. Webcourses will contain class announcements, so it would be best to visit Webcourses three times a week as well.

Individual Programming 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 provided below.) **Official assignment due dates will be posted on WebCourses.** (Please look these up yourself instead of asking a friend.)

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.**

Regarding resource usage,

- You **MAY** use any resources provided through webcourses along with any notes you or I make in class.
- You **MAY** use any resources provided through the SI or SARC leader, or office hours (either my own or my TA's).
- You **MAY NOT** use any code provided to you outside the above sources.
- **DO NOT** use another student's code.
- **DO NOT** even look at your friend's code.
- You **MAY** however discuss a solution idea at a high level with another student (e.g. "I sorted the values using a merge sort and then found the index of value x."). If you feel uncomfortable about sharing information, you can ask me through email or in person.
- **DO NOT** use code from third party resource (online or offline).

If you are caught using unauthorized resources, I will award you a -100% on the assignment for the first offense and a -200% on the second, doubling each time. Note this does not mean a 100% turns into 0%; you will receive a -100%. Anyone that knowingly assists someone in using unauthorized resources or cheating will also earn a -100% on the assignment.

Late Assignment Policy

No late assignments will be accepted for any assignment. If you realize that you won't be able to turn in an assignment on time for a legitimate reason in advance, please notify me **in advance**, and I will give you a **different assignment with a different due date.** If something occurs too near the due date to notify me, notify me as soon as possible. I'll decide if a reason is valid for an alternate assignment, keeping in mind the window of time I believe students should have been working on an assignment. (For example, a work trip out of town the last two days before an assignment is due when you had 10 days to work on the assignment is NOT a valid reason, since you should have planned and done it early.)

Community Service Opportunity

In lieu of the last individual programming assignment (program 7), you 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 get a 100 for program 7. In order to get this credit, you must complete the community service and turn in the requisite signed to be directly (in my hand) by **12:00 pm, April 11, 2024, in class.** All grades for the community service will be posted under the column P7 before the last program is due.

Final Project

The final project will be in pairs that the students select. Each pair will write a computer Reversi player using the technique of a min-max tree that is taught in class. A framework for the project will be provided that will run in Codeblocks. One or two class days will be devoted to a tournament where each pair's Reversi player plays against other pairs' players. Details and deadlines for the project will be discussed in class.

Exams (Exam 1, Exam 2, Final Exam)

Each exam will be given in class. Students will be allowed to use some notes as aids during each of the exam. The details of what aids are allowed will be discussed in the class prior to each exam. **No calculators or electronic aids will be allowed for the quiz or exams.** 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.)

Make Up Exams

If a student is unable to take an exam on time due to a serious family, medical or work situation, he or she must contact the instructor **BEFORE** the exam (if possible) and ask for a make up. Make ups will be granted in situations the instructor deems reasonable. If an emergency occurs that prevents contacting the instructor before the due date, then the student should contact the instructor as soon as possible and reasonable accommodations will be made.

Miscellaneous

After the first exam, I will put students into study groups. Those groups are expected to meet weekly (in person or virtual) in an effort to help learn the course material. I'll have the groups submit two summary reports of their meetings, each which will be worth 2.5% of the course grade, for a total of 5% of the course grade.

Also, after the first exam, I'll ask each student to meet with me in office hours (Zoom or in person) or right after class so I can get to know student names and give advice about how to succeed in the course based on each individual student's situation. This meeting will be worth 2% of the course grade.

Tentative Schedule

Week	Tuesday	Thursday	Assignments
Jan 8	Binary Search, Dynamic Memory Allocation (DMA)	Sorted List Matching, DMA	**P0 Due**
Jan 16	Math Tools	Summations	
Jan 22	Big-Oh Notation	**Exam 1**	**P1 Due**
Jan 29	Recursion	Recursion	
Feb 5	Brute Force/Backtracking	Min-Max Trees, TicTacToePlayer	**Group Project Given (due 4/11)**
Feb 12	Linked Lists	Linked Lists	**P3 Due**
Feb 19	Stacks	Queues	
Feb 26	Binary Search Trees (BST)	More BSTs	**P2 Due**
Mar 4	AVL Trees	Tries	
Mar 11	Exam 2 Review	**Exam 2**	**P5 Due**
Mar 18	**SPRING**	**BREAK**	
Mar 25	n^2 sorts	Merge Sort Quick Sort	
Apr 1	Binary Heaps Hash tables	Base conv/Bitwise ops	**P4 Due**
Apr 8	Bin Search Apps	Fnd Exam Review	
Apr 15	Group Project	Group Project	
Apr 22	**NO CLASS**	**Final Exam 10am-1pm**	**P6 Due**