Data Structures & Algorithms

COP 3530 Section 10592, 10593, 10616, 10617, 10618, 10619, 10620, 16325, 18850, 19203, 19668, 21079

Academic Term: Spring 2026

Class Periods, Modalities, and Locations:

Modality
- Lectures: In-person at CAR100 & live via Zoom and Discussion: in-person only for campus students
- Online and Asynchronous for UFOL (10616) & UDER (16325) students

Lecture
T | P2-3 (8:30 – 10:25 AM)
R | P3 (9:35 - 10:25 AM)

Discussion You must join your respective discussion:

Time	Location	Class Number
TBD	Online	10616, 16325
T | P4 (10:40 AM - 11:30 AM)	MCCB G108	10618
T | P5 (11:45 AM - 12:35 PM)	PSY 0151	10619
T | P6 (12:50 PM - 1:40 PM)	FLG 0265	10620
T | P7 (1:55 PM - 2:45 PM)	MCCA 2196	10592
T | P7 (1:55 PM - 2:45 PM)	MCCB G108	19203
T | P9 (4:05 PM - 4:55 PM)	ROL 0205	18850
T | P10 (5:10 PM - 6:00 PM)	CSE E220	10593
T | P11 (6:15 PM - 7:05 PM)	PUGH 120	19668

Instructor

Amanpreet Kapoor
kapooramanpreet@ufl.edu
Office Hours - Mon, 10:30-11:30 am & Thu, 5-6 pm (MALA 4115 or https://ufl.zoom.us/my/kapo.or)
- Or by Appointment (Request 24 hours in advance)

Teaching Assistants

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Course Description

This course covers algorithm development using pseudo languages, basic program structures, program design techniques, storage, and manipulation of basic data structures like arrays, stacks, queues, sorting and searching and string processing. Linked linear lists. Trees and multilinked structures. 3 Credit Hours.

Course Pre-Requisites / Co-Requisites

(COP 3504 or COP 3503) and COT 3100 and (MAC 2234 or MAC 2312 or MAC 2512 or MAC 3473), all with a minimum grade of C.

Course Objectives

By the end of the semester, students should be able to

- Choose and implement data structures for solving problems based on their functions and situational appropriateness of the application
- Choose an algorithm for solving a problem based on its computational complexity and appropriateness of the application
- Use an abstract data type to describe a data structure

Professional Component (ABET)

This course is used to assess program outcomes for these ABET criteria:

- An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
- An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.

Required Textbooks and Software

- Required Tools: Canvas, Slack, Gradescope, Edugator, and Honorlock

Recommended Materials (Optional)

- Textbook: Data Structures and Algorithm Analysis in C++
  - Mark Allen Weiss, Fourth edition, 2014, ISBN 9780132847377
- OpenDSA Book: https://opendsa-server.cs.vt.edu/ODSA/Books/Everything/html/index.html

Course Schedule (Tentative)

Week	Dates		Topic	Deadlines
1	12-Jan	18-Jan	Course Introduction/Algorithm Analysis	
2	19-Jan	25-Jan	List, Stacks, & Queues	Q_1, Q_2
3	26-Jan	1-Feb	Trees	Q_3
4	2-Feb	8-Feb	Balanced Trees 1	Q_4
5	9-Feb	15-Feb	Balanced Trees 2	Q_5
6*	16-Feb	22-Feb	Heaps & Priority Queues / Sorting	P_1
7	23-Feb	1-Mar	Exam 1 (Feb 26, 8:20 pm EST)	E_1, Q_6
8	2-Mar	8-Mar	Sets, Maps, & Hashing	P_{2a}
9	9-Mar	15-Mar	Graphs 1	Q_7
10	16-Mar	22-Mar	Spring Break	
11	23-Mar	29-Mar	Graphs 2	Q_8, P_{2b}
12	30-Mar	5-Apr	Greedy Algorithms	Q_9
13	6-Apr	12-Apr	Dynamic Programming	
14	13-Apr	19-Apr	Exam 2 (Apr 14, 8:20 pm EST)	E_2
15	20-Apr	22-Apr	Complexity Theory	Q_{10}, P_3

Legend: Q_N = Quiz N, P_N = Project N, E_N = Exam N

* Lecture on Feb 19 will be pre-recorded due to work travel.

Evaluation of Grades

Modality	Assignment	% of Final Grade
Individual	Programming / HTG Quizzes (drop two lowest scores)	10%
	Conceptual quizzes (drop two lowest scores)	10%
	Exam 1	20%
	Exam 2	20%
	Project 1	12%
	Project 3	12%
	Class participation (drop four lowest scores)*	3%
	Discussion participation (drop four lowest scores)*	3%
Collaborative	Project 2 (Individual or Group: 2a & 2b)	10%
Individual	Extra Credit Opportunities	Up to 2%
		Total: 102%
* Online and Asynchronous for UFOL (10616) & UDER (16325) students will be provided with alternate coding problems that they can complete to substitute these grades. Synchronous participation is optional for them.		

Grading Policy

Percent	Grade	Grade Points
93.4 - 103	A	4.00
90.0 - 93.3	A-	3.67
86.7 - 89.9	B+	3.33
83.4 - 86.6	B	3.00
80.0 - 83.3	B-	2.67
76.7 - 79.9	C+	2.33

Percent	Grade	Grade Points
73.4 - 76.6	C	2.00
70.0 - 73.3	C-	1.67
66.7 - 69.9	D+	1.33
63.4 - 66.6	D	1.00
60.0 - 63.3	D-	0.67
0 - 59.9	E	0.00

More information on UF grading policy: https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx

Attendance Policy

1. You are expected to attend live lectures either in person or synchronously via Zoom. Random in-class activities will occur during lectures and count toward your grade. The only exception is for students in UFOL (10616) & UDER (16325) sections as they are not required to attend these synchronously.
2. Discussions are held in person only and will include graded activities. The only exception is for students in UFOL (10616) & UDER (16325) sections as they are not required to attend these synchronously.
3. Conceptual quizzes will be administered through Honorlock and must be taken remotely.
4. **Exams will be administered in person for campus students** and online for students in UFOL (10616) & UDER (16325) sections.

Course Communication, Office Hours, and Code Review Policy

5. **Use course slack or office hours for all course related communication**. For any personal communication such as accommodations request, you can use emails, but we will not answer course related questions such as debugging requests by email. **Note that we do not respond to Canvas messages as we prefer to keep all communications in one place.**
6. We typically answer queries on Slack within 48 business hours.
7. Students should visit the course staff during scheduled office hours for help with projects or quizzes. **Debugging requests** for projects/quiz questions must first go through the TAs or peer mentors. This is **strongly encouraged** given we have a large class and several of you might have similar questions. If your problem is not fixed, then discuss it with the instructor **during their office hours**. Debugging requests to the instructor as a direct message on Slack or an email will be ignored if you do not follow the above protocol.

8. **Request for extensions on assessments:** Requests for extensions should be supported by official documentation (e.g., from a medical professional) and submitted preferably via Slack, or alternatively by email. Requests without documentation will be ignored. The following reasons deem ineligibility for extensions or regrades:
    A. **Failure to submit on Canvas by due date/late date.** Example: If a quiz is due at 11:59 pm, and you send the file at 12:01 am, the file will not be graded. Note that most assessments are open for 3 late days and/or have drops. You must start early and submit it on time. In case you miss an assignment, treat it as a learning activity and avoid that in the future.
    B. **Forgetting** to turn in an assessment on time.
    C. **File naming issues or feedback issues** on projects. Gradescope gives you feedback and please read it and fix your file and resubmit. Note that you have unlimited attempts on Gradescope for everything and we will not grade your files if you do not adhere to instructions on file submissions and/or if the Gradescope scores your file to 0. It is your responsibility to read the feedback and fix your code. In case you miss reading the feedback, treat it as a learning activity and avoid that in the future.

Make-Up, Project Resubmission, and Late Submission Policy

9. **No make-up or late submission** allowed on **quizzes or other participation extra credit opportunities**. Remember, you have drops and we open the quizzes for 4 days, so you have plenty of time in advance. **One of the drops is for you to use it in lieu of getting sick, forgetting to submit on time, or professional development (e.g., going to a conference). So don't ask for extensions as we will not be offering alternative assessments on these activities.**
10. Projects submitted late will be penalized by **10% each day for up to three days**. After the third day, you will get a 0. We also count weekends as regular days. So, if an assignment is due Friday, and you submit on Sunday, the max score you can get is 80 (2 days late penalty, 20% deduction).
11. No late submission allowed on Project 2 (2a and 2b as it is a group project).
12. Projects 1 and 3 will have a hidden test suite which we will use for grading after your submission. If you score lower than 100 points on Project 1 or 3, you will have an opportunity to resubmit and get 50% credit back for each additional test case you pass in the suite. We will see the differences in your two submissions to make sure you aren't submitting an entirely new version of the code.
13. Exams may be made up when a student has an excused absence. These absences must be notified to the instructor at least 72 hours before the exam. Excused absences must be consistent with university policies in the catalog (https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx) and require **appropriate documentation**. Please note that there is no guarantee that requests will be accommodated. There will be a common make-up for both exams covering all modules on the date of the final setup by the registrar. You can only take this make-up after Instructor approval.

Grade Review

14. After one week of posting a grade, no revisions will be made. In the event of a grade review, the entire assignment will be reviewed, and your score can also decrease.
15. If there is an ambiguity on a quiz or exam question, you need to get back to the instructor within two hours of taking the quiz/exam to potentially get back points in case the ambiguity is genuine.
16. **We do not negotiate auto-graded components on assessments unless there is a typo such as a comma or a space.** Please do not contact us for partial credit on auto-graded questions. Missing values is not considered as a typo. **You get partial credit if you select one of the correct answers for auto-graded questions. You get negative partial credit if you select the wrong answer. This is deliberate. Otherwise, you will select every option and get full credit if there was no negative penalty.**

Class Expectations

17. Programming Quizzes are submitted on Edugator; The course staff will not help with the coding logic for programming quizzes in office hours until the due date. We treat programming quizzes as exams, but we can help with syntax if needed. You also have a buddy to work with and can ask for help on logic if stuck.
18. For the exams, you must use C++ to describe your solution to a given problem.
19. C++ is the programming language that will be used throughout the course. You will be coding using C++14 in all quizzes and Projects 1 and 3. For Project 2, you can use any language or multiple languages.

20. Strive for correctness, clean, readable, tested, and documented code throughout the course and not for optimization. Correctness and readability are the goals for this course. Once you have the correct solution then optimize if you want.
21. The course will not include Design patterns, Competitive programming, or Formal proofs. The instructor or the course staff will answer questions on the former topics contingent on their time or point out additional resources. Feel free to post such questions on Slack channels. If any of your classmates do post such questions, don't feel intimidated and if you don't understand it, it is perfectly natural and fine. Some students are more experienced, and everyone should strive to improve their learning not comparing to others.

Academic Dishonesty

22. **Quizzes and Exams:**
    - You are **required** to work on conceptual quizzes, and exams **independently** without asking or searching for solutions on the web.
    - For **programming quizzes**, you can select a buddy and work together or can work on them individually. **If working together, both members should upload their solutions separately**. Note that the person you select to work with should remain the same for every programming quiz. You are allowed to collaborate with them at a conceptual level, or you can pair program with them. Add a statement on line 1 of your code file stating the collaborator you worked with. If you work individually or as a pair, you must code the solution without asking or searching for solutions on the web. If your code as a group or as an individual matches another group or an external solution, both members will be reported for violation of the Honor Code.
    - You are **allowed** to:
        A. discuss solutions after the due date.
        B. search for C++ syntax or refer to definitions of standard functions in the C++ library. For example, using the documentation listed here is fine: https://www.cplusplus.com/reference/ or https://en.cppreference.com/w/

23. **Project 1 and 3**:
    - You are **required** to work on projects **independently** without asking or searching for solutions on the web.
    - You are **allowed** to
        A. discuss conceptually small sections in your project without discussing any code with a peer provided you cite the peer with who you discussed it. Such discussions should be held on a whiteboard using explanation figures/pseudo-codes or through talking.
        B. discuss solutions after the due date and late days have passed.
        C. search for C++ syntax or refer to definitions of standard functions in the C++ library. For example, using the documentation listed here is fine: https://www.cplusplus.com/reference/ or https://en.cppreference.com/w/

24. **Project 2**:
    - It is fine to collaborate with peers. You must make sure you do not blindly copy-paste another student's code. Also, you must cite the peer you worked with at the code level or conceptually.

25. **GenAI and coding policy for assessments**:
    - Sharing, copying, "borrowing" code, viewing another student's work, or plagiarism of any form is academic dishonesty. You may not view or share external code, search for solutions online, use genAI tools such as ChatGPT to generate entire functions/programs, use AI tools to write/translate reports, or have someone else complete your work.
    - AI tools may be used for learning concepts or subtasks, but not to produce solutions for quizzes, exams, or projects. **If GenAI tools are used for learning, you must cite the tool, model, and prompt**.
    - Any student found to have violated these rules, whether a provider or receiver or unauthorized help, will be reported to the Honor Court and will receive a failing grade (an 'E') for the course. **If you aren't clear on what constitutes plagiarism, ask the course staff.**

- **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 by emailing me and withdrawing your assignment within 48 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.

Discussion and Slack Policy - Be Nice, Be Helpful

26. Treat your classmates with civility and respect. Don't attack anyone and no discussion of controversial topics on channels.
27. If you have a question regarding code or content, always post it on the appropriate ***Slack*** channels if you want the course staff to answer. Don't hesitate to ask, no matter how simple the question may be.
28. Use private message or email only if the message is related to personal requests. **Questions related to debugging on private messages will be ignored.**
29. Questions will be answered **Monday – Friday in less than 48 business hours typically** by at least one member of the course staff.
30. Try to answer questions posted by your course mates if possible and help them. This is helpful for a vibrant environment in a remote course.
31. Harassment/Bullying/Making fun of another student will not be tolerated and will lead to disciplinary actions. If you encounter disrespectful or inappropriate behavior on the forum, please report it to the instructor directly- do not engage or argue publicly.

Students Requiring Accommodations

Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the disability Resource Center by visiting https://disability.ufl.edu/students/get-started/. It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester.

Academic Policies & Resources

https://go.ufl.edu/syllabuspolicies

Commitment to a Positive Learning Environment

The Herbert Wertheim College of Engineering values varied perspectives and lived experiences within our community and is committed to supporting the University's core values.

If you feel like your performance in class is being impacted, please contact your instructor or any of the following:

- Your academic advisor or Undergraduate Coordinator
- HWCOE Human Resources, 352-392-0904, student-support-hr@eng.ufl.edu
- Pam Dickrell, Associate Dean of Student Affairs, 352-392-2177, pld@ufl.edu