CIS 22C 61Y – Data Abstraction and Structures

Instructor	Manish Goel
Class Hours	TTh: 6:00 pm – 7:50 pm, AT312, Class Time
	W: 9:00 pm – 10:15 pm ONLINE, Lab and HW Time
Office Hours	MW: 5:30 pm – 6:45 pm, TTh: 5:30 pm – 5:55 pm or by appointment
Office Location	Room F-51L in Bldg F5, though I'm usually in the ATC Computer Lab
Phone	(408) 864-8996 – turnaround time can be 24 hours
Email	goelmanish@fhda.edu – this is the best way to reach me

Text *Data Abstraction and Problem Solving with C++: Walls and Mirrors* by Carrano and Henry (latest edition is 7th, but 6th edition will also work)

Class website Please log into Canvas for specific course details and most up-to-date information.

Course Description Application of software engineering techniques to the design and development of large programs; data abstraction and structures and associated algorithms: stacks, queues, linked lists, trees, graphs, and hash tables; internal and external sorting; use of recursion; team project.

Requisites Prerequisites: CIS 22B or equivalent. Advisory: Mathematics 212 or equivalent.

Student Learning Outcomes Upon the completion of this course, students will be able to:
- Read, analyze and explain advanced data structures programs.
- Design solutions for advanced problems using appropriate design methodology incorporating advanced data structure programming constructs.
- Create and analyze efficiency of advanced level data structures algorithms, code, document, debug and test advanced data structure programs using multiple source and header files.

Attendance Any student who is a No-Show on first day of class will be dropped.

After the first class, it is *your responsibility to drop the class before the last day to drop.* Otherwise, you will receive an appropriate grade at the end of the quarter.

This hybrid course has 4 lecture / lab hours on campus in addition to online reading and assignments. Regular and punctual attendance is expected during the quarter. Lectures will be the main source of information.

Class Decorum In class, you are expected to pay attention, participate, not conduct personal conversations, and use the computer for class work only. Disruptive behavior is not tolerated, and any student with excessive disruptive behavior will be asked to leave and administrative follow-up may result. On the other hand, worthwhile contribution and regular attendance can positively affect your grade.

Scholarly Conduct Discussion and exchange of ideas on lab assignments are strongly encouraged. However, each team is expected to complete their own computer work. **Identical solutions or those simply copied from the web will be given a zero grade to all parties. DO NOT SHARE EITHER SOFT OR HARD COPY OF YOUR CODE WITH ANYONE. Copying (including simply copying from the web) or cheating during an exam will result in a zero being assigned to the test grade for both parties and may result in a failing grade. ANY SUCH ACTIVITY WILL BE REPORTED FOR DISCIPLINARY ACTION.**

Lab Assignments   There will be several lab assignments of differing point scores:
- All labs will be completed by a pair of students as a team but submitted individually.
- All labs will be graded individually based on partner rating and time of each submission.
- All labs (and project) should be done in C++ using the Microsoft Visual Studio 2017 IDE (MSVC17) and the output should run on ATC Lab machines outside of the IDE.
- All labs have to be turned in as a soft copy via Canvas by their due date.
- Partial credit will be given for incomplete labs based on corresponding grading rubrics.
- Labs turned in after the due date will receive a 10% _per 24-hour late_ penalty. This late penalty will be based on Canvas reporting submission being late.
- Canvas allows multiple submissions – only the last submission will be graded.
- Labs turned in more than 7 days after the due date will not be graded.
- All labs will build on the prior ones, so missing any labs could be hard to make up.

Team Project   Participating in a team project is **required** for this class. Teams will be of 4 people each and will develop a functional and modular software program using ADTs and data structure algorithms. Each student will contribute one or more module to their team's project and all modules must be linked together to furnish a fully functional application. Each team will present their project to the class with each team member being responsible for presenting their own modules. Structure charts, documentation, presentation, source code and executables are to be turned in as final deliverables of the project. During team project development and presentation, presence in class is mandatory and roll will be taken.

Exams   There will be multiple short quizzes, 1 midterm and 1 final.
* All exams are open book, open notes, no electronic devices.
* The quizzes will be multiple choice, fill in the blank questions or code correction questions.
* Midterm and final will include programming questions for which code submission will be required similar to lab assignments.
* You must pass the final exam in order to pass the class.
* Make up for the quizzes or midterm will be allowed only with proof of emergency reasons or student's receipt of prior approval by the Division Dean or VP of Instruction. Make up tests will be given no later than one week after the original, will be administered outside a class session and will have a 25% penalty.
* Final exam must be taken only during the scheduled time – there will be no make up.

Code Lab   CodeLab is an online learning tool and its use is worth at least 25 points.

Extra Credit   There will be other opportunities to earn extra credit – these will be determined later. You must be present in class to earn the extra credit

Grading   Grading is based on the percentage of the total points obtained (no curve will be applied):
    Lab assignments: 75 points (cumulative lab scores will be scaled proportionally)
    Codelab: 25 points (cumulative lab scores will be scaled proportionally)
    Project: 50 points
    Quizzes: 50 points
    Midterm: 50 points
    Final: 50 points
    Total: 300 points

A+: 97-100%	B+: 87-89%	C+: 77-79%	D+: 67-69%	
A : 93-96%	B : 83-86%	C : 70-76%	D : 63-66%	
A- : 90-92%	B- : 80-82%		D- : 60-62%	F : 0-59%