

INSTRUCTOR: Cynthia Lee-Klawender  
(<http://www.deanza.edu/faculty/leeklawendercynthia/>)

OFFICE HOURS, OFFICE: Mondays and Wednesdays 12:50 - 1:15 PM and 3:25 - 3:50 (in F41C or AT203); Tuesdays and Thursdays 12:50 - 1:15 PM (in F41C and 3:25 - 3:50 (in F41C or AT311), or by appointment in F41C (between L4 & L6 buildings)

PHONE & EMAIL: (408) 864-8609, E-mail for questions or help:  
**LeeKlawenderCynthia@deanza.edu**

PREREQUISITE: Computer Information Systems 22B or equivalent.

ADVISORY: Mathematics 212 or equivalent.

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.

STUDENT LEARNING OUTCOMES:

- Read, analyze and explain advanced data structures programs.
- Design solutions for advanced problems using appropriate design methodology incorporating advanced data structures programming constructs.
- Create and analyze efficiency of advanced level data structures algorithms, code, document, debug, and test advanced data structures programs using multiple source and header files.

TEXTBOOK: Frank M. Carrano, "Data Structures and Abstractions with C++", sixth edition, Walls and Mirrors, (ISBN-13: 978-0-13-292372-9, ISBN-10: 0-13-292372-6)

LECTURE NOTES: Will be provided online on Catalyst

CLASS NOTES: Many of the class exercise answers and announcements will be posted in Catalyst (<https://catalyst.deanza.edu> ) on a week-by-week basis.

COMPUTER LAB: You may use our computer lab or your own (or another) computer and compiler. If you don't use our computer lab, you need to have a C++ compiler in order to do homework assignments. If you're enrolled in this class, you will automatically have an account in our classroom and AT203 Open Computer Lab (if you're adding, add online in Admissions office, wait about 20 min. before using the open lab). Bring a flash drive to the Computer Lab to back up your programs or remember to email to yourself.

**COURSE OUTLINE (subject to change):** This is a hybrid class. Meet in person on Mondays and Wednesdays, 1:30-3:20 PM. The rest will be presented in Catalyst. The instructor will be online Fridays, 4:30-5:50 PM.

	<u>Dates</u>	<u>Lessons</u>	<u>Resources</u>
Week 1	Jan. 5 - 11	Review of Linked Lists, Templates, 22C Node and Linked List classes	Catalyst Lesson 1, Textbk. Ch. 1 (C++ Interlude)
Week 2	Jan. 12 - 18	Stacks Queues	Catalyst Lesson 2 & 3, Textbk Ch. 6&7, Ch. 13&14
Week 3	Jan. 19 - 25	<i>Holiday Mon., Jan. 19</i> Complex Linked Lists	Catalyst Lesson 4
Week 4	Jan. 26-Feb. 1	Recursion  Algorithm Efficiency	Catalyst Lesson 5, Textbk Ch. 2, Ch. 5 Catalyst Lesson 6, Textbk Ch. 10
Week 5	Feb. 2-8	Trees, Binary Trees, Binary Search Trees	Catalyst Lesson 7, Textbk Ch. 15&16
Week 6	Feb. 9 - 15	Hashing  MIDTERM	Catalyst Lesson 8, Textbk Ch. 18
Week 7	Feb. 16 - 22	<i>HOLIDAY FEB. 16</i> AVL Trees	Catalyst Lesson 9, Textbk Ch. 19
Week 8	Feb. 23-Mar. 1	Heaps	Catalyst Lesson 10, Textbk Ch. 17
Week 9	Mar. 2 - 8	Graphs	Catalyst Lesson 11, Textbk Ch. 20
Week 10	Mar. 9 - 15	Sorting: Shell Sort, Quick Sort, External Sort	Catalyst Lesson 12, Textbk Ch. 11&21
Week 11	Mar. 16 - 22, Mar. 23	Project Presentations Review for Final	
Week 12	FINAL	<b>FINAL EXAM</b> Tues. March 24 at 1:45 p.m.-3:45 p.m.	Comprehensive

EVALUATION:	Prog. Assignments (5)	30% (Each = 6%)
	Participation	10% (Class exercises)
	Midterm	25%
	Team Project	10%
	Final Exam	<u>25%</u>
		100%

**MAKE-UP TESTS:** NO MAKE-UP TESTS WILL BE GIVEN! Please notify the instructor ASAP if you know ahead of time you will be missing a test.

**EXTRA CREDIT:** Maximum of 5 extra credit projects may be counted! If the project is other than given with the lab assignments, it must be approved

by the instructor before they are attempted or it may not be accepted. This will be discussed later in the semester. The extra credit projects are due at the final exam, and *must include the source file(s) and **output***. (Note: Extra credit will only be counted if the student is receiving less than an A+.)

**WITHDRAWING FROM CLASS:** I will not automatically drop anyone from class, even if you stop attending classes. If you wish to discontinue the class, you must go the Admissions Office and turn in a signed drop card or you may receive an 'F' in the class.

**PROGRAMMING HOMEWORK GRADING:** Each will be graded as follows:

- 35 points: Does the program correctly & completely solve the problem?
- 7 points: Is the listing commented & indented? Will I understand what the program is doing (good logic, variable, class and function names)? Is the program efficient?
- 8 points: ON TIME! (1 point deducted starting day after due date + every other day late--CAN'T TURN IN 3 WEEKS after due date!)

50 points possible (for each programming assignment)

**NOTE: NOTHING WILL BE ACCEPTED AFTER **Fri., March 27, 11:59 PM!****

**GRADING BREAKDOWN** (adding each score/max-points \* weight):

A+		Total Percent >=	97.0
A	90.5	<= Total %<	97.0
A-	87.5	<= Total %<	90.5
B+	84.5	<= Total % <	87.5
B	80.5	<= Total % <	84.5
B-	77.5	<= Total% <	80.5
C+	74.5	<= Total% <	77.5
C	69.5	<= Total% <	74.5
D+	65.5	<= Total% <	69.5
D	60.5	<= Total% <	65.5
D-	57.5	<= Total% <	60.5
F	Total Percent <		57.5