

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

OFFICE HOURS, OFFICE: Held ONLY online in CCCConfer's ConferZoom (link given in Canvas) on Tuesdays and Fridays, 3:30 - 4:30 PM , Wednesdays and Thursdays, 11:30 AM -12:30 PM or by appointment

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PREREQUISITE: (For this section only) Computer Information Systems 36B or 35A or equivalent (ability to program in Java including arrays, classes, inheritance, polymorphism).

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: **Data Structures and Abstractions with Java, 4th Edition**, by Frank M. Carrano & Timothy M. Henry, (ISBN-13: 978-0-13-374405-7, ISBN-10: 0-13-374405-1)

LESSONS: Will be provided online on Canvas. You need to complete the orientation (see <http://deanza.edu/online-ed/> for links to the orientation for this course, then <https://deanza.instructure.com/> to get access to this course on Canvas).

CLASS NOTES: Assignments and announcements will be posted in Canvas (<https://deanza.instructure.com/>). You need to check this site at least 2 times per week!

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 Java 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 a few hours 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 an online class. All the material and assignments are given and submitted online EXCEPT for the Midterm, Team Project Presentations, and Final Exam, which will be held in person on campus.

	<u>Dates</u>	<u>Lessons</u>	<u>Resources</u>
Week 1	Sep. 25 – Oct. 1	Java Generics and Linked List classes	Canvas Lesson 1, Textbk. Ch. 1 (Java Interlude)
Week 2	Oct. 2 – 8	Stacks Queues	Canvas Lesson 2 & 3, Textbk Ch. 5&6, Ch. 10&11
Week 3	Oct. 9 – 15	Complex Linked Lists	Canvas Lesson 4
Week 4	Oct. 16 – 22	Recursion Algorithm Efficiency	Canvas Lesson 5, Textbk Ch. 7 Canvas Lesson 6, Textbk Ch. 4
Week 5	Oct. 23 – 29	Trees, Binary Trees, Binary Search Trees	Canvas Lesson 7, Textbk Ch. 23, 24, 25
Week 6	Oct. 30 – Nov. 5	Hashing	Canvas Lesson 8, Textbk Ch. 21, 22
Week 7	Nov. 6 – 12	MIDTERM (Tue., Nov. 7, 6:00-8:00 PM in Forum 1) More on Hashing	Canvas Lesson 8, Textbk Ch. 21, 22
Week 8	Nov. 13 – 19	Graphs	Canvas Lesson 11, Textbk Ch. 28,29
Week 9	Nov. 20 – 26	AVL Trees Heaps	Canvas Lesson 9, Textbk Ch. 27 Canvas Lesson 10, Textbk Ch. 26
Week 10	Nov. 27 – Dec. 3	Sorting: Shell Sort, Quick Sort, External Sort	Canvas Lesson 12, Textbk Ch. 8 & 9
Week 11	Dec. 4 – 10	Project Presentations on Dec. 7 or 8 Review for Final	Info. on Canvas On Canvas and online meeting
Week 12	Dec. 14 (Thur)	FINAL EXAM 6:15 – 8:15 PM (Room: TBA)	Comprehensive

EVALUATION:	Prog. Assignments (5)	30% (Each = 6%)
	Participation	12% (Class exercises, online meetings)
	Midterm	25%
	Team Project	8%
	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 the last day of the quarter (Dec. 15), 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., Dec. 15, 11:55 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