

CIT 596-001 2020A Algorithms & Computation




CIT 596-001 2020A Algorithms & Computation

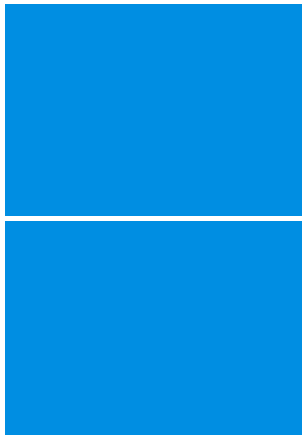



[Jump to Today](#)




Our main textbook for this course is called "Algorithms Unlocked" by Cormen.

This is basically a super-condensed version of Cormen, Leiserson, Rivest, and Stein. If you already have that book, there is no need to purchase Algorithms Unlocked.



We will also use the Dynamic Programming chapter from Vazirani et al. The pdf of that chapter will be posted here.

#	Date	Topics	Lecture notes	Readings from the text / other sources
1	1/16	Intro. Policies (the boring but important stuff!).	Intro_2020_596.pptx  colpol.pptx 	Algorithms unlocked chapter 1
			BigONotes.pdf  lect2.mp3	

2	1/21	Review recursion. Analyzing recursive algorithms	 (lecture recording because the mic did not work)	
3	1/23	Analyzing iterative algorithms. Nested loops.	Iterative.pdf 	Chapter 2
4	1/28	Sorting - Selection sort, Insertion sort.	Sorting part 1.pdf 	Chapter 3
5	1/30	Merge sort.	Continuation of material in notes above	
6	2/4	Counting sort Radix sort	Beatingnlogn-1.pdf 	Chapter 4
7	2/6	Bucket sort		

8	2/11	Intro to graph algorithms		
9	2/13	Topological sort	TopSort.pdf 	Chapter 5
10	2/18	Shortest path in a DAG <i>(not part of midterm 1)</i>		
11	2/20	midterm 1		
12	2/25	BFS and DFS	bfsdfs.pdf 	For this material, please read the CLRS handout. You do not need to focus on the proofs, but please understand the algorithms thoroughly.
13	2/27	BFS and DFS contd.		
14	3/3	Dijkstra intro	Dijk.pdf 	Chapter 6 in the book has both Dijkstra and Bellman Ford.

15	3/5	Dijkstra with heaps Bellman Ford	Bellman Ford.pdf 	
16	3/10	Spring break		
17	3/12	Spring break		
18	3/17	More spring break		
19	3/19	even more spring break		
20	3/24	Bellman Ford recap and review Dynamic programming begins		
21	3/26	Dynamic programming	DPChapter.pdf 	
22	3/31	Floyd Warshal algorithm		
23	4/2	Greedy algorithms	Greed.pdf 	

24	4/7	Minimum spanning trees. Prim's algorithm		
25	4/9	Kruskal's algorithm		
26	4/14	Union Find using disjoint sets	UF.pdf 	
27	4/16	Guest speaker - Rebecca Star and Nick McAvoy		
28	4/21	P and NP	NP Completeness.pdf 	Chapter 10
29	4/23	NP-Completeness Example of NPC reduction		
30	4/28	What do we do with NP Complete problems?		

	5/7	final exam 9am on 5/7 to 9am on 5/8 All exams to be submitted on Gradescope.		
--	-----	--	--	--

Course Summary:

Date	Details
Tue Jan 28, 2020	<input type="checkbox"/> HW1_Code due by 11:59pm
	<input type="checkbox"/> HW1_Theory due by 11:59pm
Tue Feb 4, 2020	<input type="checkbox"/> HW2 due by 11:59pm
Tue Feb 11, 2020	<input type="checkbox"/> HW3-Code due by 11:59pm
	<input type="checkbox"/> HW3-Theory due by 11:59pm
Tue Apr 21, 2020	<input type="checkbox"/> HW9 due by 11:59pm
	<input type="checkbox"/> all of the extra credit
	<input type="checkbox"/> exam1
	<input type="checkbox"/> finalexam

□ HW10

□ HW4_code

□ HW4_theory

□ HW5

□ HW6

□ HW7

□ HW8

□ Placeholder for
professionalism scores

□ tentative grade as of Apr
9
