

Automata, Computability, and Formal Languages, Fall 2020			
(tentative schedule)			
Week	Dates	Topic	Reference
1	8/25/2020	Intro, Strings, Languages, Finite Automata (DFA)	§0.2, 1.1
	8/27/2020		
2	9/1/2020	Union of DFA, NFA, from NFAs to DFAs, regular expressions	§1.2, 1.3, 1.4
	9/3/2020		
3	9/8/2020	Closure properties, GNFA's, from NFAs to REs, nonregular languages (pumping lemma)	§1.3, 1.4
	9/10/2020		
4	9/15/2020	Context-Free Grammars, parse trees, from NFA to CFG, from RE to CFG, Chomsky normal form	§2.1
	9/17/2020		
5	9/22/2020	Pushdown automata (PDA), from CFG to PDA, from PDA to CFG	§2.2
	9/24/2020		
6	9/29/2020	Review, test 1	
	10/1/2020		
7	10/6/2020	Non-context-free languages, pumping lemma for CFL	§2.3
	10/8/2020		
8	10/13/2020	Deterministic PDA, parsing: top-down and bottom-up, LL(1) grammars, how compilers work.	§2.4
	10/15/2020		
9	10/20/2020	Turing machines	§3.1
	10/22/2020		
10	10/27/2020	Review, test 2	
	10/29/2020		
11	11/3/2020	Nondeterministic TM and other TM variants	§3.2
	11/5/2020		
12	11/10/2020	Time complexity, P, NP, NP-completeness, NP-hardness, reducibility between problems	Chapter 7
	11/12/2020		
13	11/17/2020	Church-Turing thesis, decidable languages	§3.3, 4.1
	11/19/2020		
14	11/24/2020	Whether a TM accepts an input is undecidable	§4.2

15	12/1/2020	Recursive (Turing-decidable) and recursively enumerable (Turing-recognizable) languages	§4.2
	12/3/2020		
16	-----	Final Exam	
	12/9/2019		