

CS 302 - Formal Languages & Automata Theory *Spring 2022*

	<i>NAME / SCHEDULE</i>	<i>E-MAIL / PLACE</i>	<i>OFFICE HOUR</i>
INSTRUCTOR	<i>Kemal İNAN</i>	<i>inan</i>	<i>By appointment</i>
ASSISTANT(S)	<i>Cavit ÖZBAY</i>	<i>cavitozbay</i> https://sabanciuniv.zoom.us/j/4227584665	<i>F 14.40 – 16.30</i>
	<i>Alperen DOĞAN</i>	<i>alperend</i> https://sabanciuniv.zoom.us/j/7290590460?pwd=MmtKeUkwbFpkUG8ySmFsL2ZlSW9ZOT09	<i>R 11.40 - 13.30</i>
	<i>Berk TÜRETKEN</i>	<i>berkturetken</i> https://us02web.zoom.us/j/82613567897 (Passcode: wSpj3R)	<i>W 10:40 - 12:30</i>
	<i>Simay İLDENİZ</i>	<i>simayildeniz</i> https://us02web.zoom.us/j/3649760119?pwd=eHBMVUEvRS84aEozWDlGSHRMamRXOT09 (Passcode: 4u6uaf)	<i>T 15:40 - 17:30</i>
	<i>Ali Kağan AKBAŞ</i>	<i>akagan</i> https://zoom.us/j/5603492647?pwd=ZWk3ekVWUFJET3FOMEZwO0ZZK2tsZz09 (Passcode: 06J4cq)	<i>F 12:40 - 14:30</i>
LECTURES	<i>M 12:40 – 13:30</i> <i>T 11:40 – 13:30</i>	https://sabanciuniv.zoom.us/j/779384517 https://sabanciuniv.zoom.us/j/779384517	
RECITATION	<i>Tu 14:40 – 15:30</i>	https://sabanciuniv.zoom.us/j/4227584665	

Main Text: [Introduction to Automata Theory, Languages and Computation](#) , Hopcroft, Motwani & Ullman, Pearson (Addison Wesley) 2006 , 3rd edition

Auxiliary Text: *Elements of the Theory of Computation*, Lewis & Papadimitriou, Prentice Hall 1998.

Grading Policy: 10% HW, 35% Quizzes, 20% MT, 35% Final

Tentative Course Outline

1 – Introduction: Languages, Automata and Grammars (Main Text (MT) 1.1, 1.5)

Slide1

2 – Deterministic Finite Automata as Language Acceptors (DFA) (MT 2.1, 2.2) S2

3 – Nondeterministic Finite Automata (NFA) and Linguistic Equivalence to DFA (MT 2.3 - 2.5) S2

4 – Regular Expressions (RE) (MT 3.1) S3

5 – RE and NFA (M.T 3.2) S3

6 – Regular Languages and Properties (M.T. 4.1, 4.2) S3-S4

7 – State Equivalence and Minimal State DFA (MT 4.4) S4

8 – Algorithms for the DFA and NFA (MT 4.3, 4.4) S4

9 – Context-Free Grammars (CFG) (MT 5.1) S5

10– Parse Trees and Applications (MT 5.2, 5.3) S5

11 – Ambiguity in Grammars and Languages (M.T. 5.4) S5

12 – Pushdown Automata (PDA) (MT 6.1, 6.2) S6

13 – CFG and PDA (M.T. 6.3) S6

14 – Deterministic Context-Free Languages (MT 6.4) S6-S7

15 – Properties of and Algorithms for Context Free Languages (MT 7.1,7.2, 7.4) S7

16 - Determinism and Parsing (AT 3.7, p 158-177) S7

17 - Introduction to Turing Machines (AT Chapters 4 ,5 selections) S8