

George Washington University
Department of Computer Science

CSCI 3313-10
Foundations of Computing
Fall 2017

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Text: *Introduction to the Theory of Computation* (3rd Edition)
 Michael Sipser, Thompson Course Technology

Grading:	Weekly Homework Assignments	20 %
	Project	20 %
	3 75-minute Exams	45 % (15 % each)
	Final Exam	15 %

Academic Integrity: The official George Washington University Code of Academic Integrity can be accessed online at http://dev.cs.gwu.edu/academics/integrity/cs_integrity

Course Outline (Tentative)

	Topics	Reading
1.	<i>Introduction</i> Mathematical preliminaries, proof techniques	0
2.	<i>Regular Languages and Finite State Automata</i> Finite automata Non-determinism Regular expression Pumping lemma	1.1 1.2 1.3 1.4
	Exam 1	
3.	<i>Context-free Languages and Pushdown Automata</i> Context-free grammars Pushdown automata Pumping lemma	2.1 2.2 2.3
	Exam 2	
4.	Parse trees, Parsing algorithms (LL parsing, LR parsing)	handout
	Exam 3	
5.	<i>Computability Theory</i> Turing machines and variations Church-Turing thesis Decidability and Halting problem Undecidable problems, Post Correspondence Problem,	3.1, 3.2 3.3 4.1, 4.2
6.	<i>Complexity Theory</i> Big-Oh, P, NP, NP-completeness, NP-complete problems	7
	Final Exam	