

cmpe 220 - Fall 2018-3 bingo																			
v20180917																			
Midterm #1: 06.11.2018/17:00																			
Midterm #2: 04.12.2018/17:00																			
Final: 04.01.2019/17:00																			
day 24 1 8 15 22 29 5 12 19 26 3 10 17																			
month 9 10 11 12																			
Goal	mt1	mt2	fin	Topics	weeks	1	2	3	4	5	6	7	8	9	10	11	12	13	14
				Discrete and Combinatorial Mathematics, 5e															
				Ralph P. Grimaldi															
				Logic															
				2. Fundamentals of Logic.															
0	1	1		0	Basic Connectives and Truth Tables.	1													
0	1	1		0	Logical Equivalence: The Laws of Logic.	1													
0	1	1		0	Logical Implication: Rules of Inference.	1													
0	1	1		0	The Use of Quantifiers.	1													
0	1	1		0	Quantifiers, Definitions, and the Proofs of Theorems.	1													
0				0	Summary and Historical Review.														
				0 Sets, Relations, Functions															
				3. Set Theory.															
0	1	1		0	Sets and Subsets.	1													
0	1	1		0	Set Operations and the Laws of Set Theory.	1													
0	1	1		0	Counting and Venn Diagrams.	1													
0				0	A First Word on Probability.														
0				0	The Axioms of Probability (Optional).														
0				0	Conditional Probability: Independence (Optional).														
0				0	Discrete Random Variables (Optional).														
0				0	Summary and Historical Review.														
				5. Relations and Functions.															
0	1	1		0	Cartesian Products and Relations.	1													
0	1	1		0	Functions: Plain and One-to-One.		1												
0	1	1		0	Onto Functions: Stirling Numbers of the Second Kind.			1											
0	1	1		0	Special Functions.			1											
0	1	1		0	The Pigeonhole Principle.			1											
0	1	1		0	Function Composition and Inverse Functions.			1											
0				0	Computational Complexity.														
0				0	Analysis of Algorithms.														
0				0	Summary and Historical Review.														
				7. Relations: The Second Time Around.															
0	1	1		0	Relations Revisited: Properties of Relations.				1										
0	1	1		0	Computer Recognition: Zero-One Matrices and Directed Graphs.				1										
0	1	1		0	Partial Orders: Hasse Diagrams.				1										
0	1	1		0	Equivalence Relations and Partitions.				1										
0				0	Finite State Machines: The Minimization Process.														
0				0	Summary and Historical Review.														
				0 Algebra															
				14. Rings and Modular Arithmetic.															
0	1		1	1	The Ring Structure: Definition and Examples.														
0	1		1	1	Ring Properties and Substructures.														
0	1		1	1	The Integers Modulo n.														
0				0	Ring Homomorphisms and Isomorphisms: The Chinese Remainder Theorem.														
0				0	Summary and Historical Review.														
				15. Boolean Algebra and Switching Functions.															
0				0	Switching Functions: Disjunctive and Conjunctive Normal Forms.														
0				0	Gating Networks: Minimal Sums of Products: Karnaugh Maps.														
0				0	Further Applications: Don't-Care Conditions.														
0				0	The Structure of a Boolean Algebra (Optional).														
0				0	Summary and Historical Review.														
				16. Groups, Coding Theory, and Polya's Theory of Enumeration.															
0	1		1	1	Definition, Examples, and Elementary Properties.														
0				0	Homomorphisms, Isomorphisms, and Cyclic Groups.														
0				0	Cosets and Lagrange's Theorem.														
0				0	The RSA Cipher (Optional).														
0				0	Elements of Coding Theory.														
0				0	The Hamming Metric.														
0				0	The Parity-Check and Generator Matrices.														
0				0	Group Codes: Decoding with Coset Leaders.														
0				0	Hamming Matrices.														
0				0	Counting and Equivalence: Burnside's Theorem.														
0				0	The Cycle Index.														
0				0	The Pattern Inventory: Polya's Method of Enumeration.														
0				0	Summary and Historical Review.														
				17. Finite Fields and Combinatorial Designs.															
0	1		1	1	Polynomial Rings.														
0	1		1	1	Irreducible Polynomials: Finite Fields.														
0				0	Latin Squares.														
0				0	Finite Geometries and Affine Planes.														
0				0	Block Designs and Projective Planes.														
0				0	Summary and Historical Review.														
				0 Integers															
				4. Properties of the Integers: Mathematical Induction.															
0	1		1	1	The Well-Ordering Principle: Mathematical Induction.														
0	1		1	1	Recursive Definitions.														
0	1		1	1	The Division Algorithm: Prime Numbers.														
0	1		1	1	The Greatest Common Divisor: The Euclidean Algorithm.														
0	1		1	1	The Fundamental Theorem of Arithmetic.														
0				0	Summary and Historical Review.														
				0 Combinatorics															
				1. Fundamental Principles of Counting.															

