

cmpe 220 - Fall 2016-3 bingo																			
v20160919																			
hw #1: 10.10.2016/09:00																			
hw #2: 07.11.2016/09:00																			
hw #3: 12.12.2015/09:00																			
Midterm #1: 25.10.2016/13:00-14:50																			
Midterm #2: 29.11.2016/13:00-14:50																			
Final: TBA																			
day 19 26 3 10 17 24 31 7 14 21 28 5 12																			
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.																			
1	1				0 Basic Connectives and Truth Tables.	1													
1	1				0 Logical Equivalence: The Laws of Logic.	1													
1	1				0 Logical Implication: Rules of Inference.	1													
1	1				0 The Use of Quantifiers.	1													
1	1				0 Quantifiers, Definitions, and the Proofs of Theorems.	1													
0					0 Summary and Historical Review.														
0					0 Sets, Relations, Functions														
0					0 3. Set Theory.														
1	1				0 Sets and Subsets.		1												
1	1				0 Set Operations and the Laws of Set Theory.		1												
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.														
0					0 5. Relations and Functions.														
1	1				0 Cartesian Products and Relations.		1												
1	1				0 Functions: Plain and One-to-One.			1											
1	1				0 Onto Functions: Stirling Numbers of the Second Kind.			1											
1	1				0 Special Functions.			1											
1	1				0 The Pigeonhole Principle.			1											
1	1				0 Function Composition and Inverse Functions.			1											
0					0 Computational Complexity.														
0					0 Analysis of Algorithms.														
0					0 Summary and Historical Review.														
0					0 7. Relations: The Second Time Around.														
1	1				0 Relations Revisited: Properties of Relations.				1										
1	1				0 Computer Recognition: Zero-One Matrices and Directed Graphs.				1										
1	1				0 Partial Orders: Hasse Diagrams.				1										
1	1				0 Equivalence Relations and Partitions.				1										
0					0 Finite State Machines: The Minimization Process.														
0					0 Summary and Historical Review.														
0					0 Algebra														
0					0 14. Rings and Modular Arithmetic.														
1	1				1 The Ring Structure: Definition and Examples.														
1	1				1 Ring Properties and Substructures.														
1	1				1 The Integers Modulo n.														
0					0 Ring Homomorphisms and Isomorphisms: The Chinese Remainder Theorem.														
0					0 Summary and Historical Review.														
0					0 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.														
0					0 16. Groups, Coding Theory, and Polya's Theory of Enumeration.														
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.														
0					0 17. Finite Fields and Combinatorial Designs.														
1	1				1 Polynomial Rings.														
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					0 Integers														
0					0 4. Properties of the Integers: Mathematical Induction.														
1	1				1 The Well-Ordering Principle: Mathematical Induction.														

