Readings – CS 6515 Intro Graduate Algorithms

This table is not intended to reflect the scheduled order of lectures or the optional status of the lectures. Please refer to the class Schedule for that information.

Lectures	Description	DPV Section(s)
n/a	Big-O notation	0.3
DP1	Dynamic Programming: Fibonacci (FIB)	0.2
DP1	Dynamic Programming: Longest Increasing Subsequence (LIS)	6.2
DP1	Dynamic Programming: Longest Common Subsequence (LCS)	6.3
DP2	Dynamic Programming: Knapsack	6.4
DP2	Dynamic Programming: Chain Multiply (CMM)	2.5, 6.5
DP3	Dynamic Programming: Shortest Path	6.1, 6.6, 4.6, 4.7
DC1	Fast Integer Multiplication	2.1
DC2	Sorting Algorithms	2.3
DC2	Linear-Time Median	2.4
DC3	Solving Recurrences	2.2
DC4, DC5	Fast Fourier Transform (FFT)	2.6
GR1	Graph Traversal and Connectivity	3.1, 3.2, 3.3, 3.4, 4.1, 4.2, 4.3, 4.4
GR2	2-Satisfiability	3.4, 5.3, 8.1
GR3	Minimum Spanning Tree	5.1
GR4	Markov Chains and PageRank	n/a
MF1, MF2, MF4	Flows on Networks	7.2
MF3	Image Segmentation	9.3.2
MF5	Max-Flow Generalization	7.2
NP1	Introduction to Complexity Theory	8.1, 8.2
NP2	3-SAT	8.3, 5.3
NP3, NP4	NP-Hard Graphs Problems and Knapsack	8.3, 6.7, 5.4
NP5	Halting Problem	8.3
LP1	Introduction to Linear Programming	7.1, 7.6
LP2	Linear Programming: Geometry	7.6
LP3	Linear Programming: Duality	7.4
LP4	Hardness of Integer Linear Programming (ILP) and Max-SAT Approximation	7.7, 8.1, 8.3
RA1	Modular Arithmetic	1.1, 1.2
RA2	RSA Cryptosystem	1.3, 1.4
RA3	Bloom Filters	1.5