DESIGN AND ANALYSIS OF ALGORITHMS

COURSE INFO

CALENDAR

← BROWSE COURSE MATERIAL

Assigned readings are from the course textbook:
Buy at MIT Press Cormen, Thomas, Charles Leiserson, et al. *Introduction to Algorithms*. 3rd ed. MIT Press, 2009. ISBN: 9780262033848. [Preview with Google Books]

[L] = Lecture, [R] = Recitation

L1	Overview, Interval Scheduling	Assignment 1 Out
L2	Divide & Conquer: Convex Hull, Median Finding	
R1	Divide & Conquer: Smarter Interval Scheduling, Master Theorem, Strassen's Algorithm	
L3	Divide & Conquer: FFT	Assignment 1 Due, Assignment 2 Out
R2	B-trees	
L4	Divide & Conquer: Van Emde Boas Trees	Assignment 2 Due, Assignment 3 Out
R3	Amortization: Union-find	
L5	Amortization: Amortized Analysis	
L6	Randomization: Matrix Multiply, Quicksort	Assignment 3 Due, Assignment 4 Out
R4	Randomization: Randomized Median	
L7	Randomization: Skip Lists	
L8	Randomization: Universal & Perfect Hashing	Assignment 4 Due
R5	Dynamic Programming: More Examples	
L9	Augmentation: Range Trees	
L10	Dynamic Programming: Advanced DP	Quiz 1, Assignment 5 Out One Day After
L11	Dynamic Programming: All-pairs Shortest Paths	
L12	Greedy Algorithms: Minimum Spanning Tree	
R6	Greedy Algorithms: More Examples	Assignment 5 Due, Assignment 6 Out
L13	Incremental Improvement: Max Flow, Min Cut	
L14	Incremental Improvement: Matching	Assignment 6 Due, Assignment 7 Out
R7	Incremental Improvement: Applications of Network Flow & Matching	
L15	Linear Programming: LP, Reductions, Simplex	
L16	Complexity: P, NP, NP-completeness, Reductions	Assignment 7 Due
R8	Complexity: More Reductions	
L17	Complexity: Approximation Algorithms	Quiz 2 Two Days After, Assignment 8 Out Three Days After
L18	Complexity: Fixed-parameter Algorithms	
R9	Complexity: Approximations	Assignment 8 Due, Assignment 9 Out

Feedback

L19	Synchronous Distributed Algorithms: Symmetry-breaking. Shortest-paths Spanning Trees	
L20	Asynchronous Distributed Algorithms: Shortest-paths Spanning Trees	Assignment 9 Due, Assignment 10 Out
R10	More Distributed Algorithms	
L21	Cryptography: Hash Functions	
L22	Cryptography: Encryption	
R11	Cryptography: More Primitives	Assignment 10 Due
L23	Cache-oblivious Algorithms: Medians & Matrices	
L24	Cache-oblivious Algorithms: Searching & Sorting	