

MCS/CS 401, Spring 2020

Midterm 1, Topics Outlines

February 28, 2020

- asymptotic notation (Θ, O, Ω), worst-case and average case running time of algorithms
- recurrences, master theorem
- probabilistic analysis, randomized algorithms, hiring problem
- sorting algorithms: insertion sort, mergesort, heapsort, quicksort, randomized quicksort, counting sort
- decision trees, lower bound for sorting
- finding the maximum, selection in expected linear time (outline), selection in worst-case linear time

Chapters and sections covered

Chapters 1, 2, 3, Section 4.5, Sections 5.1 - 5.3, Sections 6.1 - 6.4, Chapter 7, Sections 8.1 - 8.2, Chapter 9