

## Final Exam: Notes

The final exam will be Wednesday, August 10 from 6:00-8:20, WWH 101. It will be closed book and closed notes. No electronic devices permitted.

Topics:

- Order of magnitude comparison
- Worst case asymptotic running time analysis.
- Sorting algorithms: Insertion sort, selection sort, heapsort, mergesort, quicksort, bucket sort.
- Lower bound on comparison sort.
- Set implementations: hash tables (chaining), heaps, 2-3 trees.
- Depth-first search, topological sort.
- Shortest path algorithms: Dijkstra's and Floyd-Warshall
- Minimum spanning tree algorithms: Prim's and Kruskal's
- Union-find. Union-find trees with rank-based merging and path-compression.
- Algorithm design techniques: Greedy algorithms, dynamic programming.

Not on the exam: NP-completeness, exhaustive state-space search, branch and bound, whatever is new in the lecture on August 3.