Final Exam: Notes

The final exam will be Monday May 14, 7:00-9:00, WWH 102. It will be closed book and closed notes. No electronic devices permitted.

The exam will be cumulative, covering both halves of the course; however, material from the second half will be emphasized, since the first half was covered in the mid-term.

Topics:

- Order of magnitude comparison
- Worst case asymptotic running time analysis.
- Sorting algorithms: Insertion sort, selection sort, heapsort, mergesort, quicksort, bin sort, bucket sort.
- Lower bound on comparison sort.
- Set implementations: hash tables (chaining), heaps, 2-3 trees.
- Graph implementations
- 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.
- Dynamic programming.

Not on the exam: The derivation of the average case running time for Quicksort. The technique for probabilistically hashing sets of large elements (Bloom filters). NP-completeness and any new material presented in the lectures of April 30 and May 7.