ECE 3020 - Exam 2 Material

(I) Probability (Web)

- prob. basics: sample space, prob. axioms/lemmas
- experiments w/ equally likely outcomes
- experiments w/ not equally likely outcomes
- conditional prob., independence
- Bayes formula, Law of Total Prob.
- Expectation, variance
- Huffman codes (only on Web)
- randomized alg's (Sec. 4.13)

(II) Trees

- definitions, structural and recursive (Sec. 5.2)
- tree terminology (Sec. 5.2)
- structural induction (Sec. 5.5)
- data structures for trees (Sec. 5.3)
- depth-first search (Sec. 5.4, 5.6)
- binary search trees (Sec. 5.7)
- AVL trees (Web)
- heaps, heapsort (Sec. 5.8, 5.10)

Not Covered

Sec. 5.8
Sec. 9.5 (Kruskal's Alg.)
Sec. 9.4

(III) Graphs

- graph basics (Sec. 9.2)
- connected components, depth-first search (Sec. 9.6, 9.7)
- data structures for graphs (Sec. 9.3)
- minimum-weight spanning trees, Prim's alg. (Sec. 9.5, Web)
- Dijkstra's shortest path alg. (Sec. 9.8)
- A* alg. (Web)
- Floyd's alg. (Sec. 9.9)
- network flow, Ford-Fulkerson alg. (Web)
- planarity, graph coloring (Sec. 9.10)