**CS311 What we have covered (Yoshii)**

* **This list forms the basis of all other classes you will be taking.**
* **Your job is to add a paragraph to each item describing everything you have learned about it.**
* **Put it as the first thing in the CS311 binder.**
* **Then, keep this binder for the rest of your life (or at least until your job interviews are over).**

**Data Structures:**

1. stack (array; vector)
2. queue (array)
3. linked list (inheritance, operator overloading, copy constructor)
4. binary (search) tree
5. heap tree (array version)
6. graphs (adjacency list)

**Algorithms:**

1. Evaluating post fix expressions (stack)
2. Generating all strings made up of a set of characters (queue)
3. Searching through a list
4. Searching through a sorted list
5. Sorting (selection, bubble, insertion, quick, merge)
6. Priority queue (heap sort)
7. Traversing trees (pre, in, post,)
8. Balancing search trees
9. Traversing graphs (DFS, BFS)
10. Maximizing the profit in filling a knapsack (Greedy)
11. Finding a minimum tree within a graph
12. Finding the shortest path in a graph
13. Hashing
14. Encryption
15. Garbage collection

**Complexity Analysis:**

1. B(N) and W(N)
2. F(N) of sorting and searching
3. Time vs. Space decisions
4. Height of binary trees
5. Complete graph with N nodes
6. Connected graph with N nodes
7. P vs NP

**Now, review and prep for Final Exam.**

**Game/Competition.**

**Go over the Final Exam.**