Topics Covered Thus Far
(Note that this is only a big-picture overview – it leaves out a lot of detail)

- Abstract Data Types (ADTs) and Data Structures
- Stacks and Queues
  - Linked list implementation
  - Array implementations (including circular arrays)
- Asymptotic Analysis
  - Big-O of code snippets
  - Inductive Proofs
  - Recurrence Relations (and when to apply them)
  - Formal definition of Big-O
  - Big-O and -Omega, Theta, little-o and -omega
  - Amortized Analysis
- Dictionary ADT
- Hash Tables
  - Hash functions, hash values, and indexing
  - insert, find, remove
  - Collisions
  - Separate chaining
  - Open addressing / probing
  - Linear probing
  - Quadratic probing
  - Double hashing
  - Rehashing
- Generic trees
  - Terminology
- Binary trees
  - Terminology
  - Representation
  - Calculating the height
  - Traversals
- Binary Search Tree (BST)
  - find
  - insert
  - delete (3 cases)
  - buildTree
  - Terminology (e.g. successor, predecessor)
  - Balanced vs unbalanced trees
- AVL Trees
  - Balance conditions
  - AVL balance condition
  - Rotations
  - insert (4 cases)
- Priority Queue ADT
- Heaps
  - insert & delete
  - Percolations
  - Array representation/implementation
  - buildTree (client version and Floyd's Method /heapify)
  - d-heaps
- For each data structure
  - Ways to implement
  - Pros, Cons, and other reasons to choose one over the other