Things you need to know:

I. Problem-Solving as Search:
   - What is a “state space”?
   - What is a search tree?
   - Give examples of both of these for a particular problem (e.g., 8-puzzle, Missionaries and Cannibals problem)
   - Definitions of uninformed vs. informed (or heuristic) search
   - Definitions of completeness, optimality of search strategies
   - General idea of how the following uninformed strategies work:
     - Breadth-first
     - Depth-first
     - Depth-limited
     - Iterative deepening depth-first
   - General idea of how the following informed (heuristic) strategies work:
     - Greedy best-first
     - A*
     - Hill-climbing
     - Simulated annealing
• Definition of *admissible* heuristic
• Conditions for optimality of A* search

**II. Game-Playing**

• What is a “game tree”?
• Definition of “ply” in a game tree
• Minimax search algorithm (high-level description – not pseudocode)
• Alpha-Beta pruning algorithm (high-level description – not pseudocode)
• How to trace operation of alpha-beta algorithm, similar to examples done in class