CS 5522: Artificial Intelligence II

Midterm Review

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[These slides were adapted from CS188 Intro to AI at UC Berkeley.]
The midterm will be closed notes, books, laptops, smartphones, and people.

80 minutes in class.

Preparation:
- Lecture Slides
- Written Homework (including optional ones)
- Project 3: Reinforcement Learning
Midterm (20%)

- Make sure you understand the fundamentals in addition to being able to procedurally execute algorithms.

- The exam will not test your knowledge of Python, however questions may assume familiarity with the projects and test ability of writing pseudocode.

- See written homework, example exams for examples
Possible Midterm Topics

- **Search:**
  - BFS, DFS, USC, A*, Greedy Search
  - Tree search vs. Graph Search

- **Games:**
  - Minimax search
  - Expectimax search
  - Alpha-beta pruning

- **Utilities:**
  - Expected utilities
  - Lottery, Equivalent momentary value
  - Insurance
Possible Midterm Topics

- **Markov Decision Processes:**
  - Markov decision process definition
  - Reward functions, values and q-values
  - Bellman equations
  - Value iteration

- **Reinforcement Learning**
  - Q-learning
  - Approximate Q-Learning

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Project 3: Reinforcement Learning

Pacman seeks reward.
Should he eat or should he run?
When in doubt, Q-learn.
Possible Midterm Topics

- **Will not cover the follows:**
  - Search (properties): completeness and optimality
  - Search (heuristics): admissibility and consistency
  - MDPs (policy iteration)
  - Probabilities
  - Project 1 and Project 2
Office Hour this/next week

- Midterm - Wednesday, Feb 28th 4-5pm   (DL 495)
- Midterm - Monday, March 5th 1-2pm   (DL 495)
- no office hour - Wednesday March 7th

- Project #2 - TA hour Thursday 10:30-11:30am (DL 580)