Midterm Review

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[These slides were adapted from CS188 Intro to AI at UC Berkeley.]
Midterm

- The midterm will be closed notes, books, laptops, and people.
- 80 minutes in class.

Preparation:
- Lecture Slides
- Hand-out Exercises
- Practice Midterm
- Project 1: Search in PacMan
- Project 2: Mutli-Agent PacMan
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 hand-out exercises and practice midterm for examples

2% extra credit for submitting your solutions in lecture on Friday 3/2 by 11:10am
Possible Midterm Topics

- **Search:**
  - BFS, DFS, USC, A*, Greedy Search
  - Tree search vs. Graph Search
  - properties: completeness and optimality
  - Heuristics: admissibility and consistency

- **Games:**
  - Minimax search
  - Alpha-beta pruning
  - Expectimax search
  - Evaluation functions
Possible Midterm Topics

**Markov Decision Processes:**
- The maximum expected utility (MEU) principle
- Reflex agents and policies
- Markov decision process definition
- Reward functions, values and q-values
- Bellman equations
- Value iteration
- Policy iteration
- Be able to formulate a problem as an MDP (e.g. Gridworld; mini-blackjack)

**Probabilities**
- Joint, marginal, and conditional distributions
- Product rule, chain rule, Bayes’ rule
- Inference
- Independence, conditional independence
Possible Midterm Topics

- Will **not** cover the follows:
  - Utility theory
  - Reinforcement learning
  - Markov model
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)