

Mid-term review sheet

The mid-term exam will cover the material we have covered in class up to this point. The exam will be closed book, closed notes, and closed electronic devices. The exam will likely consist of true/false, multiple choice, and short-answer questions. You will have 1.4 hours to complete the exam.

Below is a list of topics we have covered. If you have a good understanding of these topics, you should do well on the mid-term.

Games

- Normal-form games
- Extensive-form games
- Converting extensive-form games to normal-form games
- Other characteristics of games
 - repeated nature
 - competitive nature
 - information
- Modeling real-world scenarios with games

Game theory

- Utilities and preferences
- Strategies in normal-form games (pure strategies vs. mixed strategies)
- Solution concepts (know the high-level concepts and how to identify them in games)
 - Maximin/minimax
 - Best response
 - Nash equilibrium
 - Pareto optimality
 - Strategic dominance
 - Know the relationship between Nash equilibrium and maximin
 - Sub-game perfect Nash equilibrium
- Passion within reason (“big ideas” that we talked about)
- Repeated games
 - Prisoners’ Dilemma (Axelrod)
 - Reasoning backward in the prisoners’ dilemma
 - The best strategy in the prisoners’s dilemma
 - Properties of TFT
 - Evolutionary tournaments vs. round-robin tournaments
 - Collectively stable
 - Invasion
 - Replicator dynamic
- The folk theorem
 - What does it say?
 - trigger strategies (what are they)
 - NE of repeated game (pairs of trigger strategies)
 - Is every one-shot NE a NE of the repeated game?
- The Nash bargaining solution