

Topics for Exam 2

This is the list I was looking at while I wrote the exam. (I also looked at the quizzes and homeworks.) As before, you should try to understand the concept and also know how to use that concept.

Hour Exam 2 covers everything since Hour Exam 1. This would be Chapters 9 and 10 in the textbook. Timewise, this would be the lectures from the month of October. The lecture on Wednesday, 29th of October, will be devoted to review of this material. Please let me know if you have any questions.

Mainly two candidates

Preference List Ballot. Rearranging preference list ballot after a candidate is eliminated. Majority Rule. Minority Rule. Dictatorship. Imposed Rule. Anonymous. Neutral. Monotone. May's theorem.

Mainly three or more candidates

Condorcet's method. Condorcet winner. Condorcet winner criterion (CWC). Condorcet voting paradox. Plurality voting. Borda Count. Independence of irrelevant alternatives (IIA). Sequential Pairwise Voting. Agenda. Pareto condition. Hare system. Plurality runoff. Arrow's impossibility theorem.

Mainly manipulating voting systems

Insincere voting. Unilateral change. Manipulation. Single-voter manipulation. May's theorem for nonmanipulability. 2 voters: nonmanipulable=monotone. Group manipulation. Sequential pairwise voting and agenda manipulation. Gibbard-Satterthwaite theorem.

- How does voting system x work?
- Who wins this election using voting system x ?
- What is property y ?
- Explain **WHY** voting system x has property y (or cannot have a tie, etc.).
- Use this example to explain how we know that voting system x does not have property y .
- What does it mean to manipulate an election?
- Explain why voting system x cannot be manipulated.
- Use this example to show how voting system x can be manipulated.
- What do we learn from this theorem?