Game Theory Exam Topics, Autumn 2022

- 1. Combinatorial games, existence of winning / non-losing strategies, k-nim, Sprague–Grundy function, sums of games
- 2. Strategy stealing; Hackenbush; Erdős-Selfridge theorem and its consequences
- 3. Hex, Brouwer's fixed point theorem
- 4. Strategic games: domination, pure Nash equilibrium. Repeated games, Titfor-Tat in repeated Prisoners Dilemma
- 5. Mixed Nash equilibrium, iterated elimination of dominated strategies. Proof of the Nash theorem using Brouwer's fixed point theorem; existence of symmetric Nash equilibrium
- 6. Maxmin strategies, von Neumann's minimax theorem on two-player 0-sum games
- 7. Evolutionary stability
- 8. Vickrey auction, Top trading cycles algorithm, group strategy-proofness
- 9. Stable marriage; score limits in the university admission problem

Lecture notes are uploaded to the Class Materials folder in Teams.