

COURSE OUTLINE (SYLLABUS)

1. **Course Name and Code:** Introduction to Game Theory, 5EN254
2. **Day, Time, Semester:** Fall 2009, Tuesdays 14.30 – 16.00, room NB C
3. **Instructor:** František Kopriva
4. **Contact:** fkopriva@cerge-ei.cz, home.cerge-ei.cz/kopriva
5. **Office Hours:** Tue 13:00-14:00 339 NB
6. **Course Prerequisites:** none
7. **Credits:** Exam (2 credits), Exam ECTS (4 credits)
8. **Aim of the course:** This course provides the student with the basic toolset of a modern approach to strategic issues in agents' behaviour, called Game Theory.
9. **Learning outcomes and competences:** Upon successful completion of this course, students will be able to formulate interdependence of economic agents' actions in a game-form, solve the game and provide criticism of the applicability of such approach to the real world; all this in the context of simultaneous as well as dynamic games and repeated games, all of various degrees of information available to the players. From many applications they will be able to advise designers of an institution how to optimally set the incentives of economic agents involved.
10. **Course Materials:** Osborne, M. J.: An introduction to game theory, 2004. ISBN:0-19-512895-8; Gibbons, R.: A Primer in Game Theory, 1992. ISBN: 0-74-501159-4
11. **Teaching Methodology:** Lectures with interactive participation. All tests are compulsory.
12. **Course Contents:**

1) What is game theory about?

How does it differ from traditional analysis? Applications of game theory
Basic concepts: actions, preferences, rational choice, strategic games, extensive and normal forms, strategies, games with and without dominant strategies, iterative elimination of strictly dominated strategies

*****Complete Information*****

-----Static games-----

2) Nash equilibrium

definition, beliefs, best response function, strictly and weakly dominated actions, examples

3-4) Mixed strategy equilibrium

definition, expected payoffs, best response function, strictly and weakly dominated actions, pure equilibria, existence, formation of player's beliefs, randomisation, examples, trembling hand perfection

-----Dynamic games -----

5-6) Subgame perfect equilibrium

analysis of extensive-form games with perfect information, players and information sets, backward induction, subgame perfection, forward induction, applications and examples, bargaining and negotiations, ultimatum game, centipede game

7) Midterm

8-9) Games of complete but imperfect information

applications and examples.

*****Incomplete information*****

-----Static games-----

10-11) Bayesian Nash equilibrium

static games of incomplete information, examples, normal form representation of bayesian games, applications – auction, double auction

-----Dynamic games -----

12) Perfect Bayesian Equilibrium

pooling and separating equilibrium, finding PBE in signaling games, applications – job market signaling, cheap talk games

13. Assessment Procedures:

Midterm: 40%

Final: 60%

For those who cannot show up at midterm: midterm may be retaken during the final exam.

Those who would not be satisfied with their midterm results may opt for the midterm during the final exam as well. However, this may result in lower number of points from midterm for those who would perform worse than before..

Cheating during exams

- Students caught cheating in examinations will be expelled from the examination room and given a failing grade for the examination concerned.
- Students caught indulging in behavior which is suggestive of cheating (e.g. whispering or passing notes) will, at a minimum, be warned, and in the case of continued misbehavior will be expelled from the examination room and given a failing grade for the examination concerned.