TOPICS IN GAME THEORY
PHD509

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Non-cooperative game theory has become an integral part of the theoretical foundations of economics. Familiarity with its main concepts, methods and results is necessary for work in virtually all research areas in economics, and, in fact, also in large parts of such diverse fields as political science, biology and computer science. This course aims at providing a rigorous introduction to non-cooperative game theory and its application to economics. Classical and new concepts and results will be discussed. The course is recommended especially for those who are interested in analyses of market interactions, incentives and organization, political economy, institutional economics, and behavioral and experimental economics.

Topics

1. *The extensive and normal forms*: perfect recall, mixed and behavior strategies, Kuhn's theorem, Bernoulli functions and payoff functions.
2. *Normal-form analysis*: dominance, best replies, rationalizability, Nash equilibrium, perfect equilibrium, proper equilibrium, persistent equilibria, curb sets and behavior correspondences.
3. *Extensive-form analysis*: Nash equilibrium, subgame perfection, sequential equilibrium, perfect Bayesian equilibrium, extensive-form perfection, forward induction, the Thompson transformation and invariance.
4. *Repeated games*: strategy spaces, payoff functions, the one-shot deviation principle, Folk theorems.
5. *Social preferences*: altruism, inequity aversion, moral values.
6. *Pre-play communication*: cheap talk, language and games.
7. *Evolution*: Evolutionary stability, deterministic and stochastic population dynamics, conventions, culture and social norms, evolutionarily stable preferences and moral values.

Examination

The total course credit is 7,5 ECT. To obtain a full score, participants have to pass a written exam (4 ECT) and to obtain a pass for a term paper on a topic chosen together with the instructor.

The core material of the course is provided in the form of lecture notes, available at the outset of the course, and a selection of journal articles (partly decided together with the participants during the course). A list of relevant references is given below.

References

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