

Ljubljana Doctoral Summer School

22 – 26 July 2019 (WEEK 2)



COURSE TITLE: Behavioral Game Theory

ECTS credits: 4

Course schedule: from 9:00 to 13:00

Lecturer:

Otto Philipp E, European University Viadrina, Germany

Aims of the course:

Basic introduction into game theory and applications in behavioural and experimental settings

Course syllabus:

The intensive course provides an overview of the central concepts of game theory and how these can or cannot be applied in different decision making contexts. Game theory is a way of formalizing strategic situations to derive a more fundamental understanding of the various dependencies in social settings. Part of the course is teaching you strategic considerations that can be taken into account when making your choices. Furthermore, game theory can help to predict other peoples' choices or the behavior of organizations standing in strategic relations with consequences for your own behavior. Diverse empirical methods will be introduced, concentrating on explanatory experiments and behavioral regularities.

Tentative schedule:

The course focuses on the experimental results concerning fundamental aspects of game theory. The five days of the course are structured according to the *central components of game theory* with their respective research backgrounds, corresponding experimental investigations, and their various behavioral observations.

- I: Normal Form Games & Nash Equilibrium
- II: Extensive Form Games & Backward Induction
- III: Mixed Strategies, Asymmetric Information & Signaling
- IV: Repeated Games, Evolutionary Stable Strategies & Learning
- V: Presentations, Wrapping-Up & Exam





List of readings:

Compulsory reading prior to class:

- Lecture 1 (Monday): Camerer 1997, Gächter 2004, Tversky et al. 1990
- Lecture 2 (Tuesday): Friedman & Sunder 1994, Gigerenzer & Brighton 2009
- Lecture 3 (Wednesday): Weizsäcker 2003, Dufwenberg & Kirchsteiger 2004
- Lecture 4 (Thursday): Shachat 2002, Suetens et al. 2016
- Lecture 5 (Friday): Goeree & Holt 1999, Thaler 2016

Bibliography:

- Camerer, C. (1997). Progress in behavioral game theory. *Journal of Economic Perspectives* 11, 167-199.
- Friedman, D. & Sunder, S. (1994). *Experimental Methods: A Primer for Economists*. Cambridge University Press (Chapters 2&3, 10-37).
- Dufwenberg, M. & Kirchsteiger, G. (2004). A theory of sequential reciprocity. *Games and Economic Behavior* 47, 268-298.
- Gächter, S. (2004). Behavioral game theory. In: D.J. Koehler & N. Harvey (Eds.), *Blackwell Handbook of Judgment and Decision Making* (Chapter 24, 485-503).
- Gigerenzer, G. & Brighton, H. (2009). Homo heuristics: Why biased minds make better inferences. *Topics in Cognitive Science* 1, 107-143.
- Gneezy, U. & Rustichini, A. (2000). A fine is a price. *Journal of Legal Studies* 29(1), 1-17.
- Goeree, J.K. & Holt, C.A. (1999). Stochastic game theory: For playing games, not just for doing theory. *Proceedings of the National Academy of Sciences* 96(19), 10564-10567.
- Goeree, J.K. & Holt, C.A. (2001). Ten little treasures of game theory and ten intuitive contradictions. *American Economic Review* 91, 1402-1422.
- Shachat, J.M. (2002). Mixed strategy play and the minimax hypothesis. *Journal of Economic Theory* 104, 189-226.
- Suetens, S., Galbo-Jørgensson, C.B. & Tyran J.-R. (2016). Predicting Lotto numbers: a natural experiment on the gambler's fallacy and the hot-hand fallacy. *Journal of the European Economic Association* 14(3), 584-607
- Thaler, R.H. (2016). Behavioral economics: Past, present, and future. *American Economic Review* 106(7), 1577-1600.
- Tversky, A., Slovic, P. & Kahneman, D. (1990). The causes of preference reversals. *American Economic Review* 80, 204-217.
- Weizsäcker, G. (2003). Ignoring the rationality of others: evidence from experimental normal-form games. *Games and Economic Behavior* 40(1), 145-171.





Background Readings:

- Erik Agner (2012): *A Course in Behavioral Economics*, Palgrave Macmillan.
- Colin F. Camerer (2003): *Behavioral Game Theory: Experiments in Strategic Interaction*, Princeton University Press.
- Prajit K. Dutta (1999): *Strategies and Games: Theory and Practice*, MIT.

Teaching and examination methods:

Besides the general introduction into the necessary material, experimentation, active participation, and group work are the main teaching methods of the course. Each lecture includes theoretical components and practical illustrations. The material is enriched by diverse concrete examples, actively playing the games, and the discussion of its various cases for application.

Examination Methods:

Acquired research skills are strengthened in continuous knowledge tests and a final exam. Also part of the ECTS evaluation is the individual participation in the discussion and a paper presentation in class. The paper to be presented in class can be of your own choice (agreed on by me) on a research topic relating to one of the central concepts of game theory (I-V).

Prerequisites:

First knowledge and mainly interest in formal theory and abstract thinking is needed. A basic mathematical understanding for modeling decision making is useful, but not required. The compulsory reading has to be acquired before the start of the course. It includes general primers as well as state of the art publications for each topic.

Lecturer's Biographical Note:



Dr. Philipp E. Otto is specialized in Experimental Economics and Behavioral Game Theory. In 2007 he received his PhD from the University College London (UCL). He supported the LESSAC research team at ESC Dijon on experiments in consumer behavior, and teaches management, statistics, experimental, and economic classes on all academic levels. Currently he is working for the German Science Foundation on threshold public goods at the Microeconomics Department of the Viadrina University in Frankfurt (Oder), Germany. Research interests include, among others, matching markets and price bargaining, social motives and learning, cognitive heuristics and strategy selection. Publications of his appeared in various international journals such as the Journal of Socio-Economics, the Journal of Experimental Economics, the Journal of Applied Cognitive Psychology, Economica, European Accounting Review, Kyklos, and Retailing & Consumer Services.

