

Game Theory Reloaded – a Postgraduate Course



HELMUT SCHMIDT
UNIVERSITÄT
Universität der Bundeswehr Hamburg

Lecturer: Univ.-Prof. Dr. Klaus Beckmann (R2144, klaus.beckmann@hsu-hh.de, Hausruf 2844)
 Language: English
 Time: TBD
 Location: TBD
 Webseiten: <http://www.hsu-hh.de/beckmann/>
 Office hours: by appointment

This short module aims to provide doctoral students from all the social sciences with an up-to-date instrument chest of game theory methods that they can apply in their own research. The focus is on application, and so we do not aim for mathematical rigour, providing intuition rather than complete proofs.

The module is accessible for students with no prior knowledge of game theory, although it does depend on prior knowledge of mathematics at the MA level. Some familiarity with microeconomic theory would be helpful. The course is organised into three separate tiers, the first of which is aimed at beginners, while the second caters for students who have already completed an introductory game theory course. The third part addresses advanced topics and current developments such as behavioural game theory.

Learning outcomes: Upon completion of the module, you can

- model strategic interaction between agents using normal and extensive form games,
- compute Nash equilibria and subgame-perfect Bayesian Nash equilibria in such models,
- critically assess the appropriateness of game theory assumptions in a specific modelling context as well as selected nonconformist views,
- analyse evolutionary and behavioural games.

Time	Topic	Remarks
<i>First Part - Introduction</i>		
Day 1 0900 - 1030	(Non-Cooperative) Game theory in 90 minutes	
Day 1 1100 - 1230	Games in normal form: representation, dominance, Nash equilibrium	
Day 1 1300 - 1430	Games in extensive form: roll-back and subgame perfect equilibria	
Day 1 1500 - 1630	„Philosophical“ issues I: CKR, Bayesian inference	
<i>Second Part - Intermediate Topics</i>		
Day 2 0900 - 1030	Existence of Nash equilibrium. Refinements of Nash equilibrium	
Day 2 1100 - 1230	Classification systems for 2x2 games.	

Day 2 1300 - 1430	Signalling games	
Day 2 1500 - 1630	Theory of Moves	
<i>Third Part - Advanced Topics and Extensions</i>		
Day 3 0900 - 1030	„Philosophical“ issues II: Harsányi-Aumann considerations	
Day 3 1100 - 1230	Differential games	
Day 3 1300 - 1430	Evolutionary game theory: ESS, replicator dynamics	
Day 3 1500 - 1630	Behavioural game theory	
<p>Reading list:</p> <p>Binmore, Ken (2007): <i>Playing for Real: a Text on Game Theory</i>.</p> <p>Brams, Ken (2011): <i>Game Theory and the Humanities. Bridging Two Worlds</i>.</p> <p>Gintis, Herb (2009): <i>Game Theory Evolving</i></p> <p>Goforth, David (2012): <i>Topology of 2x2 Games</i></p> <p>Haurie, Alain, Jacek B. Krawczyk und Georges Zaccour (2012): <i>Games and Dynamic Games</i>.</p>		