



Game Theory and Problem of Decision

(Monographic lecture)

A. DÉMUTH

30 hours / 6 ECTS

Introductory description

The main goal of course is to introduce and to explain the main problems, concepts and theories (terms of basic ideas and terminology) in game theory, risk management and decision processes. This subject is trying to open up a whole area of thinking which includes a wide palette of problems and approaches hidden under one common name "The Game Theory" to those interested in the humanities. Second half of course is focused on the use of game theory in social and cultural areas like: economy, politics, morality or environmental behavior.

Course content

- Game theory and problem of decision - introduction
- Terminology
- Classification of Game theories and main problems
- Risk decision
- Plays in strategic form
- Prisoner's dilemma
- Plays with repetition
- Cooperative plays
- Summary I
- Game theory and economic behavior
- Paradoxes and anomalies
- GT and social contract
- GT and ethics



- Evolution GT
- Summary II

Requirements of credits – Assessment criteria

- active participation (25%)
- essay or critical analysis (3000 words), (25%)
- test (50%)

References / Literature / Reading list

1. AXELROD, R.: *The Evolution of Cooperation*. New York: Basic Books 2006.
2. BINMORE, K.: *Rational decision*. Princeton and Oxford: Princeton University Press, 2011
3. DÉMUTH, A.: *Game Theory and The Problem of Decision–Making*, Towarzystwo Słowaków w Polsce: Kraków 2013.
4. DIXIT, A., SKEATH, S., REILEY, jr. D. H.: *Games of Strategy*. New York and London: W.W. Norton a Company 2009.
5. PETERSON, M.: *An Introduction to Decision Theory*. Cambridge University Press, 2010.
6. POUNDSTONE, W.: *Prisoner's Dilemma*. New York: Anchor Books 1992.
7. RIDLEY, M.: *The Origins of Virtue: Human Instincts and the Evolution of Cooperation*. Penguin Books 1998.
8. ROSS, D.: "Game Theory", *The Stanford Encyclopedia of Philosophy* (Fall 2011 Edition), Edward N. Zalta (ed.).
9. TALEB, N., N.: *The Black Swan: The Impact of the Highly Improbable*. Random House 2010.
10. VINCENT, T. L., BROWN, J. L.: *Evolutionary Game Theory, Natural Selection, and Darwinian Dynamics*. New York: Cambridge University Press 2012.
11. OSBORNE, M. J.: *An Introduction to Game Theory*. Oxford University Press 2004.
12. OSBOURNE, M. J.; RUBINSTEIN, A.: *A Course in Game Theory*. Massachusetts, USA 1994.