

mini-course in
EVOLUTIONARY GAME THEORY

13-16 November 2012

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Game theory has become an integral part of the theoretical foundation, methodology and technical machinery of economics and many other disciplines. Familiarity with its main concepts, methods and results is necessary for work in many areas within such diverse fields as economics, political science, biology and computer science.

A key concept of game theory is Nash equilibrium. In his Ph.D. thesis, John Nash proposed two interpretations, one rationalistic (or epistemic) and one population-statistic (or evolutionary). This course focuses on the second interpretation. Thus, instead of imagining that the interaction takes place exactly once between perfectly rational individuals, we will imagine that the interaction takes place recurrently in large populations of boundedly rational individuals. What behavior patterns are then stable?

In this course, this question will be discussed and analyzed in terms of such concepts as evolutionary and neutral stability, the replicator dynamic, general deterministic and stochastic selection dynamics, and evolutionary stability of preferences. Time allowing, we will also briefly discuss such topics as pre-play communication, language and social conventions and norms.

Participants are expected to have a knowledge in game theory and mathematics corresponding to first-year Ph.D. courses in economics. There will be four lectures. The first two will be mainly based on selections from Weibull J. (1995): *Evolutionary Game Theory*, MIT Press. The remaining two lectures will discuss contributions to the recent literature.

Time and place:

- 13/11 : 11h00 -12h30
- 14/11 : 18h30 - 20h00
- 15/11 : 17h00 - 18h30
- 16/11: 17h00 - 18h30

MF323 – Building F