Syllabus

Advanced Microeconomics: Game Theory

- **Instructor:** Dr. László Á. Kóczy ([koczy@krtk.mta.hu](mailto:koczy@krtk.mta.hu); office hours: Wed, 1310-1340 @ TC212, Óbuda University, Tavaszmező 17.)
- **Credits:** 2 (... ECTS)
- **Term:** Fall 2017-2018
- **Course level:** 1st year PhD or 2nd year MA/MSc
- **Prerequisites:** Microeconomics

Course description

This course presents the foundations of, and selected topics in, game theory. We will review basic definitions and equilibrium concepts, and develop applications ranging from auctions to political economy and industrial organization. The goal is to develop a structured way of thinking about strategic interactions, which students can use in their own work.

Game theory is a formal subject with theorems and proofs. However, it is used in all fields of economics, and I particularly encourage students with applied interests to attend. The material covered is useful for diverse fields including psychology and economics, industrial organization, and macroeconomics.

Learning outcomes

By the end of this course, students will have: 1. Knowledge and understanding of game theory at a level required to read current research in economics in applied theory. 2. The ability to use, modify and extend existing game theory models in the students' own research. 3. The ability to develop game theory models for the student's own research in applied theory. 4. The ability to read current research in game theory with the help of reference texts.

Reading list

The textbook for the course is

Recommended Literature

- Gibson: Game theory – A primer. Financial Times/Prentice Hall, 1992 (an easy introduction)
- Myerson: Game theory. MIT Press, Cambridge, Massachusetts (a deep book written by a Nobel laureate)
Assessment

Requirements consist of homework assignments and a final exam. Students are encouraged to work in groups on the homeworks, but each student must submit her or his own solution. Your course grade will be determined as follows:

- Assignments 50%
- Final exam 50%

Course schedule and materials for each session (subject to change as the course develops)

   Peters, Chapters 1, 2, 12.1

   Peters, Chapters 3, 13.1-13.2.2, 13.3

3. Games in extensive form. Extensive and strategic forms. Subgame, subgame perfectness, subgame perfect equilibrium.
   Peters, Chapters 4, 14.1-14.3.1

   Peters, Chapters 5, 14.3.2

5. Extensions of noncooperative games. Auctions and other applications.
   Peters, Chapter 6

   Peters, Chapters 9.1-9.2, 16

   Peters, Chapters 9.3-9.4, 17, (18), 19

8. Implementation. The Nash Program. Implementations of the Nash bargaining solution, the core and the Shapley value.
   Further reading:

Advanced topics. Partition function form games. The alpha, beta, gamma, s, m and recursive cores.