

Course description

Adaptive learning and non-rational expectations in macroeconomics

1. Course name, ECTS, quarter/semester, contact hours

Adaptive learning and non-rational expectations in macroeconomics, 3 ECTS, 3rd quarter, 42 contact hours

2. Author of the course

Dmitri Kolyuzhnov, M.A. in economics (CERGE-EI, 2004), Ph.D. in economics (CERGE-EI, 2008)

3. Outline

This course is devoted to the area of macroeconomics and monetary economics that studies non-rational expectations of agents. In particular, the major stress is put on the so-called bounded rationality approach expressed via adaptive learning of agents. The course starts with the basics of econometric learning, considers the related concepts of sunspots, indeterminacy and agent-based computational economics, provides rigorous analysis of stability of economies under learning, considers contemporary topics of heterogeneous learning and escape dynamics in relation to macroeconomics, and discusses stability of various monetary policy rules in the framework of the New Keynesian model.

The fact that part of the course is devoted to the contemporary approaches to DSGE modeling of macroeconomic environment, including adaptive learning of agents puts this course at the same level with the macroeconomic courses of the World's leading MA and PhD programs. The course is based on up-to date textbooks and papers published in leading economic journals.

The course is developed keeping in mind the goal of the leadership in teaching: quality, level and systematic exposition. Attending this course, students may be able to see the scope and trends of contemporary economic literature and possibly find the area for their research.

4. Structure and content

№	Course section
1.	Expectations and the role of learning in economics Expectation formation models. Expectations and the role of learning. Bounded rationality. Background. Literature review. Approaches to learning. Some economic examples.
2.	Introduction to the techniques of analysis of economic models with econometric adaptive learning. <i>E</i> -stability. Stochastic recursive algorithm. Conditions for stability under adaptive learning. Types of econometric adaptive learning.
3.	Applications of adaptive learning.
4.	Basic principles of constructing micro-founded DSGE models. The relationship between different DSGE models. RBC and NK models.
5.	Stability of rational expectations equilibrium under learning when different monetary policy rules are applied.
6.	Heterogeneous adaptive learning of economic agents.
7.	δ- stability

8.	Stability of rational expectations equilibrium under heterogeneous learning when optimal monetary policy rules are applied.
9.	Escape dynamics.
	Total

5. Prerequisites

Microeconomics I, Macroeconomics I, Calculus, Probability and Statistics, Linear Algebra, Econometrics I, Game Theory

6. Assessment

Coursework – 50%

of which

Class participation points - 10%

Midterm test (written) - 40%

Final exam (written) 50%