Aims and Objectives

This course covers the methodological foundations of modern macroeconomics. The emphasis is put on a rigorous and mathematical treatment of macroeconomic issues, covering concepts such as dynamic optimization, recursive representations, and competitive equilibria. These concepts will then be applied to classical models of economic growth and business cycle fluctuations.

Course Topics

I. Dynamic Optimisation and General Equilibrium
   a. Dynamic programming
   b. Euler equations and the transversality conditions
   c. Pareto Optimum
   d. Decentralization under complete markets
   e. Sequential vs. Recursive Formulations

II. Economic Growth
   a. Ramsey Growth Model
   b. Formulation of Neoclassical Growth Model
   c. Introduction to Human Capital and Endogenous Growth

III. Business cycle fluctuations and DSGE models
   a. Log-Linearization and basic solution techniques
   b. The Real Business Cycle model
   c. Dynamic New Keynesian models
   d. Medium scale DSGE model and analysis

Readings

The main textbook for this course is Miao, J. (2014), *Economic Dynamics in Discrete Time*, MIT Press. We also offer additional material in the form of notes, exercises, sample exam questions, etc. These will be available in the course website.

Classes

There will be eight two-hour classes (three classes for part I, two classes for part II and II and three classes for part III), where problem sets from each module of the course will be solved.

Assessment

There will be a three-hour written examination.