

DSGE Models with Financial Frictions and Macroprudential Policies

Instructor: Dr. Margarita Rubio, Associate Professor, University of Nottingham

Course Overview

This course provides a comprehensive introduction to the empirical background, theory, and practical tools necessary for the solution, calibration, and simulation of Dynamic Stochastic General Equilibrium (DSGE) models. These models are widely utilized in macroeconomic research and policy analysis, particularly for examining business cycle fluctuations and monetary policy.

Students will engage with theoretical foundations but place greater emphasis on the hands-on simulation of DSGE models using computational tools. The course focuses on contemporary general equilibrium macroeconomic models that incorporate nominal rigidities and financial frictions, concluding with practical applications in evaluating macroprudential policies.

Course Details

Duration: 6 hours

Language: English

Learning Objectives

- Theoretical Foundations**
 - Derive and solve prototypical DSGE models.
 - Modify and extend these models to incorporate advanced features such as nominal rigidities and financial frictions.
- Practical Applications**
 - Use computational tools like MATLAB and Dynare for simulation and estimation of DSGE models.
- Policy Analysis**
 - Apply DSGE models to evaluate macroprudential and monetary policies in practical contexts.

Prerequisites

The course is self-contained. Familiarity with basic macroeconomic concepts and modelling is advantageous but not required.

Course Content

1. Introduction to DSGE Models

- Historical background and significance.
- Key features of DSGE models: microfoundations, stochastic processes, and equilibrium conditions.

2. Computational Tools

- Introduction to MATLAB and Dynare.
- Setting up and solving basic models.

3. Prototypical DSGE Models

- Real Business Cycle (RBC) model: assumptions, calibration, and simulation.

4. Extensions to DSGE Models

- Incorporating nominal rigidities.
- Financial frictions: modeling borrowing constraints and other financial market imperfections.

5. Policy Applications

- Simulation of macroprudential policies.
 - Case studies: Interaction of monetary and macroprudential policies during house price booms.
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Key Readings

1. Primary Materials:

- Course slides (provided during sessions).
- Dynare User Guide.

2. Books:

- Galí, J. (2008). *Monetary Policy, Inflation, and the Business Cycle*. Princeton University Press.
- Walsh, C. E. (2010). *Monetary Theory and Policy*.

3. Selected Articles:

- McCallum, B. T. (2001). "Should Monetary Policy Respond Strongly to Output Gaps?" AEA Papers and Proceedings.
 - Iacoviello, M. (2005). "House Prices, Borrowing Constraints, and Monetary Policy in the Business Cycle." *American Economic Review*.
 - Kannan, R., Rabanal, P., & Scott, A. (2012). "Monetary and Macroprudential Policy Rules in a Model with House Price Booms." *BE Journal of Macroeconomics*.
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Instructor Information

Dr. Margarita Rubio

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Dr. Margarita Rubio is an Associate Professor at the University of Nottingham, specializing in Macroeconomics and Monetary Economics. With a PhD from Boston College and extensive experience at institutions such as the Bank of Spain, the IMF, and the Bank of England, Dr. Rubio's research focuses on DSGE models with financial frictions, housing markets, and macroprudential policies. She has published in leading journals like the *Journal of Money, Credit and Banking* and *Journal of Banking and Finance*. Dr. Rubio also teaches advanced courses on DSGE models at the University of Nottingham and delivers specialized training for central banks worldwide.

Course Structure

- **Session 1:** Overview of DSGE Models and MATLAB/Dynare Introduction (2 hours)
- **Session 2:** Simulation of the Real Business Cycle and New Keynesian models (2 hours)
- **Session 3:** Financial frictions and Macroprudential Policies (2 hours)