Syllabus

[cmcd.economia@fgv.br]

Course Name: Quantitative Methods in Macroeconomics
Faculty:

2025 SECOND SEMESTER

COURSE OUTLINE

- Basic principles of computing and programming
- Solving nonlinear systems
- approximation of stochastic processes, function approximation methods
- Global approximation techniques (value and policy function iterations)
- Methods for models of heterogeneous households and heterogenous firms
- Continuous time models

COURSE PROGRAM

The aim of the course is to introduce techniques and methods for analysing macroeconomic issues with a particular focus on computational methods for advanced macroeconomics. The topics covered include solving non-linear system of equations, approximation of stochastic processes, function approximation techniques, and Monte Carlo simulations. We will introduce students to value and policy function iterations, and methods for models with heterogeneous agents and continuous time.

BIBLIOGRAPHY

Teaching material and reading: There is no main textbook for the course. The students are given necessary lecture notes/handouts, as well as some computing toolboxes (Codes, etc.) for implementing the computational methods covered. This material is also supplemented with a reading list of various papers and chapters from books.

Some useful books:

- Adda, J. and R. Cooper, (2003). “Dynamic Economics”, MIT Press;
- Heer and Maussner (2005). “Dynamic General Equilibrium Modelling: Computational Methods and Applications”, Springer;

- *Judd, K. (1998). “Numerical Methods in Economics”, MIT Press;
- Ljungvist, L. and Sargent, T.J. (2000). “Recursive Macroeconomic Theory”, MIT Press;
- Marimon, R. and Scott, A. (1998). “Computational Methods for the Study of Dynamic Economies”, Oxford University Press;
- *Miao, J. (2014). “Economic Dynamics in Discrete Time”, MIT Press;
- Miranda, M.J. and Fackler, P.L. (2002). “Applied Computational Economics and Finance”, MIT Press;
- Stokey, N. and R. Lucas, (1989). “Recursive Methods in Economic Dynamics’ Harvard University Press.

GRADING

The grade will be based on four problem sets (70%) and an exam (30%).

CONTACT

Professor
Teaching Assistant: