

PROGRAM: Undergraduate Economics – 2nd semester of 2023
 COURSE: Macroeconomic Models for Short Run fluctuations and Crises
 PROFESSOR: Rafael Chaves Santos
 TEACHING ASSISTANT: Ana Victoria Pelliccione
 COURSE LOAD: 30hs
 COURSE REQUIREMENTS: Principles of Microeconomics and basic concepts of Programming
 SPECIFIC STUDENT ASSISTANCE: right after classes, with pre-scheduling
 CLASSROOM: XXXXX

SYLLABUS

1. Course description

REAL BUSINESS CYCLE MODELS, PRICE RIGIDITY, FLUCTUATIONS AROUND STEADY STATE, DISCUSSIONS ON EQUILIBRIUM EXISTENCE AND UNICITY. MULTIPLE EQUILIBRIA MODEL AND POSSIBLE INTERPRETATIONS FOR CRISES. CODING NUMERICAL SOLUTIONS TO APPRAISE MACROECONOMIC FLUCTUATIONS.

2. Course objectives

To understand, explain and anticipate macroeconomic fluctuations

3. Core learning objectives

By the end of the course, it is expected that the students are able to understand and to model macroeconomic short term fluctuations

4. Course connection with contemporary debate

By explaining and modeling macroeconomic short term fluctuations, the course allows the students to understand the discussions concerning the main macroeconomic variables, especially GDP and inflation, which are very present in the contemporary debate

5. Teaching methods

Model derivation and MATLAB coding

6. Detailed programme content

Date	Subject	Activities
07/28	Real Business Cycle model	Deriving the model
08/04	Real Business Cycle model	Deriving the model
08/11	Real Business Cycle model	Programming (coding),

		calibration and estimation of the model – Matlab/Dynare
08/18	Real Business Cycle model	Programming (coding), calibration and estimation of the model – Matlab/Dynare
08/25	Real Business Cycle model	Programming (coding), calibration and estimation of the model – Matlab/Dynare
09/01	Phillips Curve	Deriving Phillips Curve
09/15	SAMBA model (Central Bank of Brazil's DSGE)	Understanding the model
09/22	Double Auction	Explaining the concept and debating the existence of equilibrium
10/06	Crises and Prices: Information Aggregation, Multiplicity, and Volatility	Debating Angeletos & Werning Paper and debating the unicity/multiplicity of equilibrium
10/20	Inflation Targeting with Imperfect Information	Debating Araujo, Berriel & Santos Paper
10/27	Presentations	The students will present their final results work
11/10	Presentations	The students will present their final results work
11/17	Presentations	The students will present their final results work

7. Examination

The students will model observed macroeconomic fluctuations and present results in the end of the course

8. Mandatory reading

- Class notes
- “*Real Business Cycle Models: Past, Present, and Future*”, Sergio Rebelo, March 2005.
- “*Samba: Stochastic Analytical Model with Bayesian Approach*”, Castro, Gouvea, Minella, Santos, Souza-Sobrinho, WPS Banco Central do Brasil no. 239, April 2011.
- [The Dynare Reference Manual, version 5.4 — Dynare 5.4 documentation](#)
- “*Inflation dynamics: A structural econometric analysis*”, Galí and Gertler, August 1999
- “*Efeitos da Globalização na Inflação Brasileira*”, Santos & Leon, WPS Banco Central do Brasil no. 201, January 2010.
- “*Crises and Prices: Information Aggregation, Multiplicity and Volatility*”; Angeletos and Werning, American Economic Review 2006, Volume 96, Issue 5, Pages 1720-1736

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- “*Inflation Targeting with Imperfect Information*”; Araujo, Berriel and Santos, International Economic Review 2016, Volume 57, Issue 1, pp Pages 255-270

9. Complementary reading

- [Dynare Forum](#)
- “*Time to Build and Aggregate Fluctuations*”, Kydland and Prescott, Econometrica, Volume 50, No. 6, November 1982
- “*Evaluating the sample likelihood of linearized DSGE models without the use of the Kalman filter*”, Schmitt-Grohé and Uribe, Economics Letters, August 2010
- “*Applied Bayesian econometrics for central Bankers*”, Blake and Mumtaz, Centre for Central Banking Studies
- “*Optimal Scaling for Various Metropolis–Hastings Algorithms*”, O. Roberts and Jeffrey S. Rosenthal, Statistical Science 2001, Vol. 16, No. 4, 351–367
- “*Bayesian Inference for DSGE Models*”, Herbst and Schorfheide, September 2014
- “*Shocks and Frictions in US Business Cycles: A Bayesian DSGE Approach*”, Smets and Wouters
- “*Price Rigidity in Brazil: Evidence from CPI Micro Data*”, Solange Gouvea, WPS Banco Central do Brasil no. 143, September 2007
- “*Price-Setting Behavior in Brazil: survey evidence*”, Correa, S. Petrassi and Santos, WPS Banco Central do Brasil no. 143, March 2006
- “*Brazilian Macroeconomic Dynamics Redux: Shocks, Frictions, and Unemployment in SAMBA Model*”, Fasolo, Araújo, Jorge, Kornelius, Marinho, WPS Banco Central do Brasil no. 578, March 2023

10. CV summary

- Professor at FGV
- PhD-Economics at EPGE/FGV
- MSc-Finance at PUC/RJ
- BSc-Engineering at UERJ
- Executive Director at Petrobras 2021 - 2023
- Chief Strategy Officer at Petrobras 2019 – 2021
- Manager at Central Bank of Brazil 2015-2018
- Manager at Eneva - 2014
- Executive at Vale 2011 - 2014
- Senior Economist at Central Bank of Brazil 2002-2011

<https://epge.fgv.br/we/RafaelSantos>

10. CV link

<http://lattes.cnpq.br/9072764100171571>