**European University Institute**
**Department of Economics**
**Fall 2014.**
Villa San Paolo
Tuesdays 8:45 – 10:45
October 14 – November 11

# Advanced Micro-Macroeconomics Course:
# Expectations and Learning in Macroeconomics and Finance[1]

## Ramon Marimon

This is a course designed for second year and more advanced researchers or post-docs in economics, but it is also open to other researchers, fellows or faculty of the EUI. The course focus on 'learning in macro-finance models and policy design' and it is structured in five topics that will approximately match with the five weeks of the module.

All students are expected to actively participate in the course and -- possibly in groups of up to three people – write a short exercise-paper in which learning is introduced to an existing model in order to enhance our understanding of the model, better explain macro-finance facts, and/or help policy design. For students taking the course for credit the exercise-paper is a requirement as well as a short take-home exam. The deadline of the exercise-paper is December 2, 2014. Starred references should be read ahead of the class.

## Syllabus

1.  **[Oct 14] Rational Expectations and Adaptive Learning.** Equilibrium selection. Local and Global Stability. Learning and Policy Design.

    Benhabib, Jess, George Evans and Seppo Honkapohja. 2014. "Liquidity Traps and Expectations Dynamics: Fiscal Stimulus or Fiscal Austerity?," *Journal of Economic Dynamics and Control,* forthcoming.

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Bischi, Gian Italo and Ramon Marimon. 2001. "Global Stability of Inflation Target Policies with Fiscal Constraints and Adaptive Agents," *Macroeconomic Dynamics*, 5, 2, 148–179.

Evans, George W. 2011. "The Stagnation Regime of the New Keynesian Model and Recent US Policy," University of Oregon and University of St. Andrews.

*Evans, George W. and Seppo Honkapohja. 2001. *Learning and Expectations in Macroeconomics*. Princeton University Press. Ch 1 & 2

Evans, George W., Seppo Honkapohja and Ramon Marimon. 2001. "Convergence in Monetary Inflation Models with Heterogeneous Learning Rules." *Macroeconomic Dynamics* 5,1, 1-31.

Evans, George W., Seppo Honkapohja, and Noah Williams. 2010. "Generalized Stochastic Gradient Learning," *International Economic Review,* 51 (1): 237-262.

Lucas, Robert E., Jr.1972b. "Expectations and the neutrality of money." Journal of Economic Theory 4 (2):103-124.

Marcet, Albert and Juan P. Nicolini. 2003. "Recurrent Hyperinflations and Learning." American Economic Review 93 (5):1476-1498.

Muth, John F., 1960. "Optimal Properties of Exponentially Weighted Forecasts," *Journal of the American Statistical Association,* 55, 290, pp. 299-306

Sargent, Thomas J. 2008. "Evolution and Intelligent Design" *2008 American Economic Review* 98 (1): 5-37.

*Sargent, Thomas J. 1999. *The Conquest of American Inflation*. Princeton University Press. Ch. 3.

2. **[Oct 21] Misspecified beliefs and experimental evidence.** Inductive vs. Eductive Learning. Bayesian 'Rational' Learning.

Adam, Klaus. 2007. "Experimental evidence on the persistency of output and inflation," *The Economic Journal,* 117, 603-636.

Arifovic, Jasmina, George Evans and Olena Kostyshyna. 2014. "Are Sunspots Learnable? An Experimental Investigation in a Simple Macroeconomic Model," Simon Fraser University.

Bao, Te, and John Duffy. 2014. "Adaptive vs. Eductive Learning: Theory and Evidence," University of Pittsburgh.

Bao, Te, John Duffy and Cars Hommes. 2012. "Learning, forecasting and Optimizing: an Experimental Study," WP, University of Amsterdam.

Bao, Te, Cars Hommes, Joep Sonnemans, and Jan Tuinstra. 2010. "Individual Expectations, Limited Rationality and Aggregate Outcomes," WP, University of Amsterdam.

Caroll, Christopher D. 2003. "Macroeconomic expectations of households and professional forecasters ", *Quarterly Journal of Economics,*118, 269-298.

*Duffy, John. 2014. "Macroeconomics: A Survey of Laboratory Research", WP, University of California, Irvine.

Evans, George W., Seppo Honkapohja and Ramon Marimon. 2001. "Stable Sunspot Equilibria in a Cash–in–Advance Economy," *The B.E. Journal of Macroeconomics*, 7, 1, 3.

Kreps, David. 1998. "Anticipated Utility and Dynamic Choice," in D. P. Jacobs, E. Kalai, and M. I. Kamien eds. *Frontiers of Research in Economic Theory: The Nancy L. Schwartz Memorial Lectures*. Cambridge University Press.

Marimon, Ramon, Stephen Spear, and Shyam Sunder. 1993. "Expectationally–driven Market Volatility: An Experimental Study," *Journal of Economic Theory*, 62.

Marimon, Ramon and Shyam Sunder. 1993. "Indeterminacy f Equilibria in a Hyperinflationary World: Experimental Evidence," *Econometrica*, 61, 1073-1107.

Marimon, Ramon and Shyam Sunder. 1995. "Does a Constant Money Growth Rule Help Stabilize Inflation?: Experimental Evidence" *Carnegie–Rochester Conference Series on Public Policy*, 43, 111–156.

*Sargent, Thomas J. 1999. *The Conquest of American Inflation*. Princeton University Press. Ch. 3.

Zakelj, Blaz, 2010. "Experimental Evidence of Inflation Expectation Formation," UPF & EUI.

3.  **[Oct 28] Beliefs and Asset Prices.** Euler-equation vs. long-horizon learning. Learning and the Stochastic Discount Factor.

Adam, Klaus and Albert Marcet. 2011. "Internal Rationality, Imperfect Market Knowledge, and Asset Prices," *Journal of Economic Theory*, 146, 1224-1252.

Adam, Klaus, Albert Marcet, and Juan Pablo Nicolini. 2012. "Stock Market Volatility and learning," University of Manheim.

Adam, Klaus, Johannes Beutel and Albert Marcet. 2014. "Stock Price Booms and Expected Capital Gains," University of Manheim.

Allen, Franklin, Stephen Morris, and Hyun Song Shin. 2006. Beauty Contests and Iterated Expectations in Asset Markets. *Review of Financial Studies* 19 (3):719–752.

Bossaerts, Peter, Charles Plott and William R. Zame. 2005. "Prices and Portfolio Choices in Financial Markets: Theory and Experiment," CalTech Working Paper.

Branch, Willam and George Evans. 2008. "Learning about Risk and Return: A Simple Model of Bubbles and Crashes," University of Oregon.

Burnside, Craig, Martin Eichenbaum, and Sergio Rebelo. 2011. "Understanding Booms and Busts in Housing Markets," NBER WP 16734.

Cogley, Timothy and Thomas J. Sargent. 2008. "The Market Price of Risk and the Equity Premium: A Legacy of the Great Depression?" *Journal of Monetary Economics,* 55, 454-476.

*Hansen, Lars Peter. 2014. "Nobel Lecture: Uncertainty Outside and Inside Economic Models," *Journal of Political Economy,* 122 (5): 945-987.

Preston, Bruce. 2005. "Learning About Monetary Policy Rules When Long-Horizon Expectations Matter." *International Journal of Central Banking*, 1(2), 81, 126.

4. **[Nov 4] Learning, Self-confirming Equilibria. Learning and Model Uncertainty and Validation.** Sel

Cho, In-Koo and Kenneth Kasa. 2014. "Learning and Model Validation," *Review of Economic Studies,* forthcoming (on-line).

Cogley, Timothy, and Thomas J. Sargent. 2005. "The Conquest of U.S. Inflation: Learning and Robustness to Model Uncertainty," *Review of Economic Dynamics,* 8, 528—563.

Cogley, Timothy, Riccardo Colacito, and Thomas J. Sargent. 2007. "The benefits of U.S. Monetary Policy Experimentations in the Days of Samuelson and Solow and Lucas," *Journal of Money, Credit, and Banking,* 39.

Fudenberg, Drew and David K. Levine. 2007. Self-Confirming and the Lucas Critique," Harvard University and Washington University.

Gaballo, Gaetano, and Ramon Marimon. 2014. "Breaking the Spell with Credit-Easing: Self-Confirming Credit Crises in Competitive Search Economies,"

Sargent, Thomas J. 1999. *The Conquest of American Inflation*. Princeton University Press.

Sargent, Thomas J. 2012. Nobel Lecture: United States Then, Europe Now, *Journal of Political Economy,* 120, 1, 1-40.

Saint-Paul, Gilles. 2011. "Toward a Political Economy of Macroeconomic Thinking," J. Frankel and C. Pissarides eds. *NBER International Seminar on Macroeconomics 2011,* p. 249-284.

Williams, Noah. 2012. "Financial Instability via Adaptive Learning," University of Wisconsin.

5. **[Nov 11] What have we learned and other topics:** Social Learning**;** Learning to Optimize; Perception and Classification; Perceptions, Learning, and Trust.

Buera, Francisco, Alexander Monge-Naranjo and Giorgio Primiceri. 2011. "Learning the Wealth of Nations," *Econometrica,* 79(1), pages 1-45, 01

Caplin, Andrew, John Leahy, and Filip Matějka. 2014. "Learning from Market Share when Consumers are Rationally Inattentive. New York University.

Evans, George and Bruce McGough. 2014. "Learning to Optimize," The University of Oregon.

McGrattan, Ellen, Ramon Marimon and Thomas J. Sargent.1990. "Money as a Medium of Exchange in an Economy with Artificially Intelligent Agents," *Journal of Economic Dynamics and Control,* 14 (2) 329–373.