

Universidad Torcuato Di Tella
Department of Economics
2011

Graduate Macroeconomics I

Instructor: Emilio Espino (eespino@utdt.edu)
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Lectures: Thursday, 19:15 – 21:30 (EE)
Friday, 19:15 – 21:30 (JK)
Office Hours: By appointment.

Course description

The purpose of this course is to learn different techniques to develop economic models. These models will be used as tools for the study of economic questions in dynamic macroeconomics. They can be naturally used to produce time series to be related to data but, however, all the material in this class will be studied from the theoretical point of view. Thus, although I consider that the practical implementation of the analytical methods to be developed in this course is a fundamental step for modern quantitative analysis, those issues are beyond the scope of this class.

Finally, when some specific topic is addressed, the main goal will not be an extensive review of the literature but rather to give an example of how an issue is addressed and of how these tools are used.

Most of the material will be based on lecture notes. The main additional references for this course are:

- (LS) Ljungquist, Lars and Thomas Sargent, 2004, *Recursive Macroeconomic Theory*, 2nd Edition. MIT Press.
- (C) Cooley, Thomas (editor), 1995, *Frontiers of Business Cycle Research*, Princeton University Press.
- (BF) Blanchard, Oliver J. and Stanley Fischer, 1989, *Lectures on Macroeconomics*, MIT Press.
- (STP) Stokey, Nancy L. and Robert E. Jr. Lucas with Edward C. Prescott, 1989, *Recursive Methods in Economic Dynamics*, Cambridge, Harvard University Press.

1. Mathematical Preliminaries: An Overview

Basic Topology. Separating and Supporting Theorems for Convex Analysis.
The Celebrated Weierstrass' Theorem.

Finite Dimensional Programming Problems. The Kuhn-Tucker Theorem.
Characterization of Solutions: Necessary and Sufficient Conditions.

Infinite Dimensional Programming Problems: Necessary and Sufficient Euler
Equations and Transversality Conditions.

- Simon, C. and L. Blume, *Mathematics for Economists*, Ch. 12, 18,19, 29,30.
- SLP, Chapter 4.

2. Competitive Equilibrium and Pareto Optimality in Simple Dynamic Economies

Arrow-Debreu Markets Economies.

Sequential Markets Economies.

The Fundamental Welfare Theorems and the Negishi's Approach.

- LS, Chapter 8 and 10.
- Kehoe, T. (1989), "Intertemporal General Equilibrium Models," in F. Hahn (ed.) *The Economics of Missing Markets, Information and Games*, Clarendon Press.
- Negishi, T. (1960), "Welfare Economics and Existence of an Equilibrium for a Competitive Economy," *Metroeconomica*, 12, 92-97.

3. The One-Sector Neoclassical Growth Model under Uncertainty

The Planner's Problem.

Competitive Decentralization.

On the Dynamics of the Deterministic NGM.

Recursive Competitive Equilibrium: An Introduction.

- C, Chapter 1, 2.
- LS, Chapter 7, 10, 12, 14.
- Brock and Mirman, 1982, "Optimal Economic Growth and Uncertainty: the Discounted Case", *Journal of Economic Theory*, 4, pp. 479-513.
- Jones and Manuelli, 1997, "The Sources of Growth," *Journal of Economic Dynamics and Control*, 21 (1), pp. 75-114.
- Prescott, E. and R. Mehra (1980). "Recursive Competitive Equilibrium: the Case of Homogeneous Households," *Econometrica*, 48, 1356-1379.

4. Consumption and Asset Prices

On consumption dynamics.

Income Fluctuation Problems and the Permanent Income Hypothesis.

Prices of state contingent commodities. Stocks, bonds and derivatives.

Applications: The Equity Premium Puzzle. The Modigliani-Miller Theorem. The Term Structure of the Interest Rate.

- LS, Chapter 8, 13.
- Lucas, R. E. Jr (1978), "Asset Prices in an Exchange Economy", *Econometrica*, 46, pp 1429-1445.
- Brock, W. A. (1982), "Asset Prices in a Production Economy", in J. J. McCall (ed) *The Economics of Information and Uncertainty*, University of Chicago Press.

5. Heterogeneous Agents I: Overlapping Generations Economies.

- BF, Chapter 3.
- Diamond, P. (1965): "National Debt in a Neo-Classical Growth Model," *American Economic Review*, 55, 1126-1150.
- Conesa, J. and D. Krueger (1999): "Social Security Reform with Heterogeneous Agents," *Review of Economic Dynamics*, 2, 757-795.

6. Heterogeneous Agents II: Infinitely Lived Agents

Recursive Competitive Equilibrium, the Dynamics of Wealth Distribution and Equilibrium Portfolios.

- Chatterjee, S. (1994). "Transitional Dynamics and the Distribution of Wealth in a Neoclassical Growth Model", *Journal of Public Economics*, 54, 97-119.
- Espino, Emilio (2007). "Equilibrium Portfolios in the Neoclassical Growth Model", *Journal of Economic Theory*. Forthcoming.
- Espino, E. and Hintermaier, T. (2008). "Asset Trading Volume in a Production Economy", *Economic Theory*. Forthcoming.
- Aiyagari, R. (1994). "Uninsured Risk and Aggregate Saving", *Quarterly Journal of Economics*, 109, 659-684.
- Hugget, M (1993). "The Risk-Free Rate in Heterogeneous-Agent Incomplete-Insurance Economies", *Journal of Economic Dynamics and Control*, 17, 953-69.
- Victor Rios-Rull (1995), "Models with Heterogeneous Agents" in C, Chapter 4.