

**Econ 320**  
**Macroeconomic Analysis I**  
FALL 2004, OCTOBER 18 - NOVEMBER 24  
Version: August 17, 2004

**Instructor:** Prof. Stefania Albanesi, Fuqua School of Business W418, 660-7968, email: albanesi@duke.edu.

**Time and Location:** MW 8:30 - 9:45 AM, 311 Social Science Building.

**Office Hours:** TBA

**Textbooks:**

(L-S) Robert E. Lucas, Nancy Stokey with Edward C. Prescott, 1989, *Recursive Methods in Economic Dynamics*, Harvard University Press.

(S-L) Sargent and Ljungqvist, 2001, *Recursive macroeconomic theory*, MIT Press.

**Additional Material:** Assigned research papers and a number of handouts are also required material for the course. They will be made available electronically if possible or distributed in print.

**Course website:** <http://faculty.fuqua.duke.edu/%7Ealbanesi/bio/ainfo/Econ320.htm>

**Grading:** The grading for this fragment of the course will be based on five weekly assignments and a final. They will count toward the grade as follows:

Assignments	10%
Final	40%.

The other 50% of the grade will be based on the first fragment of the course, taught by Prof. Kent Kimbrough.

**Assignment Policies:** You are encouraged to work in groups on the assignments, however, you must turn in an *individual* solution. Late assignments are unacceptable and will not be graded. You may skip one assignment without penalty. If you turn in all assignments, your four best assignments will be counted towards the final grade.

**Exams:** The officially scheduled final exam date is December 11.

**Teaching Assistants:** Xuan Liu xl8@duke.edu, Anamaria Pieschacon ap38@duke.edu

### Description of the Course

Macroeconomics is about: (i) developing positive models that can help us understand the dynamics of key macroeconomic variables: employment, unemployment, interest rates, output, etc.; and (ii) using these models to make judgements about what policies the government should, or should not, pursue. Classic questions include the proper setting of taxes and money over the business cycle. The purpose of this course is to study basic tools useful for (i) and (ii), and to review some of the relevant substantive findings reported in the literature.

This course will be focussed on addressing (i). To do so, we will begin by developing the basic building block of modern macroeconomics: the infinite lived, deterministic, representative agent growth model. We will then explore 2 sets of variations. The first will allow us to review a small subset of the modern theory of growth. The second set of variations will allow us to review the theory of business cycles and asset pricing.

The first segment of Macroeconomic Analysis II, Winter 2005 January 12-March 11, will mostly be focussed on addressing (ii). We will first introduce monetary growth models, an additional set of variations to the basic growth model. We will then study the optimal determination of fiscal and monetary policies. Initially, we will assume the government can determine at some initial date what the optimal setting of these variables is for all time, and all possible circumstances, and that it can then commit itself credibly to actually implementing these policies. We will go on to study the more realistic and complex case where the government lacks the ability to commit.

## Detailed Topics and Lecture Plan

There will be 12 lectures in this fragment of the course. The following outline summarizes topics, with the rough number of lectures devoted to each topic in parenthesis. Primary and related readings for each lecture are also listed. Some of the papers listed will be covered in assignments.

1. Infinite Horizon Model With No Uncertainty and Fixed Labor.
  - (a) (four lectures) Efficient Allocations.
    - i. Sequence Approach (S-L: pp. 8-13, sec. 4.5).
    - ii. Function Space and Dynamic Programming (S-L; pp. 13-16, sec. 4.2, sec. 6.1).
  - (b) (one lecture) Equilibrium Concepts (S-L: sec. 2.3; L-S: chap. 6, 7; Cooley-Prescott, 1995, pp. 8-10).
    - i. Sequence concepts:
      - A. Date 0 Arrow-Debreu.
      - B. Sequence-of-Markets.
    - ii. Recursive Competitive Equilibrium.
2. (two lectures) Application: Growth Theory (L-S, chap11).
  - (a) Growth generated by 'disembodied' technical change (S-L, sec. 5.4).
  - (b) Growth generated by investment-specific technical change (Greenwood, Hercowitz and Krusell (1997); see also Hornstein and Krusell, 1996).
  - (c) "Ak" models (Christiano and Harrison (1999, Appendix); see also Rebelo (1991)).
3. Adding Uncertainty and Variable Labor: the Real Business Cycle (RBC) Model.
  - (a) (one lecture) Business Cycle Implications (Cooley and Prescott (1995); see also: Boldrin, Christiano and Fisher (2001), Prescott (1986), Summers (1986)).
  - (b) (two lectures) RBC models with multiple equilibria and sunspot equilibria (Christiano and Harrison (1999), Shleifer (1986); related readings: Bryant (1981,1983), Cass and Shell (1983); Cooper and John (1988); Farmer (1993); Farmer and Guo (1994), Farmer and Woodford (1984); Gali (1994a,b); Krugman (1991); Woodford (1991)).
4. (two lectures) Asset Pricing (L-S Ch.10; see also Boldrin, Christiano and Fisher (2001), Kocherlakota (1996), Lucas (1978). Mehra and Prescott (1985))
  - (a) Asset pricing in an exchange economy.
  - (b) Introduction to Asset Pricing Puzzles

## Required Readings

- Boldrin, Michele, L. J. Christiano, and Jonas Fisher, 2001, 'Asset Pricing Lessons for Modeling Business Cycles,' *American Economic Review*.
- Cooley, Thomas F., and Edward C. Prescott, 1995, "Economic Growth and Business Cycles", in Cooley and Prescott eds., *Frontiers of Business Cycle Research*, Princeton University Press.
- Greenwood, Jeremy, Zvi Hercowitz, and Per Krusell, 1997, "Long-Run Implications of Investment Specific Technological Change", *AER*, Vol. 87, Issue 3, 342-362.
- Farmer, Roger E. A., 1999, *The Macroeconomics of Self-Fulfilling Prophecies*, MIT Press, Chapter 7.
- Greenwood, Jeremy, Zvi Hercowitz and Per Krusell, 1997, 'Long-Run Implications of Investment-Specific Technological Change,' *American Economic Review*.
- Mehra, R., and E.C. Prescott. 1985. "The Equity Premium: A Puzzle." *Journal of Monetary Economics*, vol. 15, no. 2 (March):145-161.
- Shleifer, A., 1986, Implementation cycles, *Journal of Political Economy* 94, 1163-1190.

## Related Readings

- Benhabib, Jess, and Roger E. A. Farmer, 1994, 'Indeterminacy and Growth,' *Journal of Economic Theory* 63, pp. 19-41.
- Bryant, John, 1981, 'Bank Collapse and Depression,' *Journal of Money, Credit and Banking*, XIII, pp. 454-464.
- Bryant, John, 1983, 'A Simple Rational Expectations Keynes-Type Model,' *Quarterly Journal of Economics*, Vol. XCVIII, no. 3.
- Cass, David, and Karl Shell, 1983, 'Do Sunspots Matter?', *Journal of Political Economy* 91, 193-227.
- Cooper, Russell, and Andrew John, 1988, 'Coordinating Coordination Failures in Keynesian Models,' *Quarterly Journal of Economics*, 103, August, pp. 441-463.
- Farmer, Roger E. A., 1999, *The Macroeconomics of Self-Fulfilling Prophecies*, MIT Press.
- Farmer, Roger E. A., and Guo, J.-T., 1994, 'Real Business Cycles and the Animal Spirits Hypothesis,' *Journal of Economic Theory* 63, pp. 42-73.
- Farmer, Roger E. A., and Michael Woodford, 1984, 'Self-Fulfilling Prophecies and the Business Cycle,' Center for Analytic Research in Economics and Social Science, Working Paper no. 84-12, University of Pennsylvania, April.
- Gali, Jordi, 1994a, 'Monopolistic Competition, Business Cycles, and the Composition of Aggregate Demand,' *Journal of Economic Theory* 63, pp. 73-96.
- Gali, Jordi, 1994b, 'Monopolistic Competition, Endogenous Markups and Growth,' *European Economic Review* 38, pp. 748-756.
- Hornstein, Andreas and Per Krusell, 1996, 'Can Technology Improvements Cause Productivity Slowdowns?', *Macroeconomics Annual*.
- Jones, Larry, and Rodolfo Manuelli, 1997, 'The Sources of Growth', *Journal of Economic Dynamics and Control*, vol. 21, no. 1.
- Kocherlakota, N.R. 1996. "The Equity Premium: It's Still a Puzzle." *Journal of Economic Literature*, vol. 34, no. 1 (March):42-71.
- Prescott, Edward, 1986, 'Theory Ahead of Business Cycle Measurement,' *Carnegie-Rochester Conference on Public Policy* 24:11-44, Reprinted in *Federal Reserve Bank of Minneapolis Quarterly Review* 10:9-22.
- Rebelo, Sergio, 1991, 'Long-Run Policy Analysis and Long-Run Growth,' *Journal of Political Economy*, 99, 3, June, 500-521.
- Summers, Lawrence, 1986, 'Some Skeptical Observations on Real Business Cycle Theory,' *Federal Reserve Bank of Minneapolis Quarterly Review*.
- Woodford, Michael, 1991, 'Self-Fulfilling Expectations and Fluctuations in Aggregate Demand,' in N. Gregory Mankiw and David Romer, editors, *New Keynesian Economics*, vol. 2, *Coordination Failures and Real Rigidities*, MIT Press.