

Macroeconomic Theory I and II

This course is the first part of a two-semester graduate sequence in macroeconomics. Its purpose is to introduce the basic models macroeconomists use to study economic growth and fluctuations. The second part of the sequence (14.453 and 14.454) critically re-examines some of the building blocks of these models and explores the implications of existing alternatives. Students are expected to be familiar with macroeconomics at the intermediate undergraduate level.

The TA for the first half of the course is Guido Lorenzoni (glorenzo@mit.edu). The TA for the second half is Augustin Landier (landier@mit.edu). The course web page can be accessed from <http://web.mit.edu/blanchar/www/courses.html> and <http://web.mit.edu/jaume/www/courses.html>

There are no textbooks for the course. However, we shall use material from:

Blanchard, O. and S. Fischer, Lectures on Macroeconomics, MIT Press 1989. (BF)

Barro, R.J. and X. Sala-i-Martin, Economic Growth, MIT Press 1998. (BS)

Both textbooks have been ordered at the Coop. Students may also want to consult the following textbooks:

Romer, D., Advanced Macroeconomics, MCGraw Hill 1996.

Obstfeld, M. and K. Rogoff, Foundations of International Economics, MIT Press 1996.

Aghion, P. and P. Howitt, Endogenous Growth Theory, MIT Press 1998.

These textbooks provide alternative treatments of many of the topics in this course. The first one, by David Romer, covers roughly the same issues as BF, but at a slightly lower level. The second one, by Maurice Obstfeld and Kenneth Rogoff, focuses on open economy issues. The third one, by Philippe Aghion and Peter Howitt, covers much of the material in BS, but it puts more emphasis on the Schumpeterian growth model than on the Ramsey growth model.

Macroeconomics is a rapidly changing field. To get a sense of the geography, you might find it useful to read two recent surveys:

Blanchard, O., "[What Do We Know About Macroeconomics that Fisher and Wicksell Did Not?](#)" QJE, November 2000, 115:4, 1375-1410.

Woodford, M., "[Revolution and Evolution in Twentieth-Century Macroeconomics](#)," forthcoming in P. Gifford, ed., [Frontiers of the Mind in the Twenty-First Century](#), Harvard University Press.

Reading List

The course is organized around nine topics or sections. For each topic, we have included basic readings, as well as a few papers showing further applications or extensions. A star denotes required reading.

0. Introduction

The Solow and Ramsey models. Applications to growth and fluctuations. A guide to this course.

* BF, Chapter 2 (skip section 2.4)

* BS, Chapter 1 (skip section 1.3); Chapter 2; and the appendix on mathematical methods

Solow, R. M., "[A Contribution to the Theory of Economic Growth](#)," QJE, February 1956, 70, 1, 65-94

* Mankiw, N.G., D. Romer and D. N. Weil, "[A Contribution to the Empirics of Economic Growth](#)," QJE, May 1992, 107, 2, 401-437

Ramsey, F.P., "[A Mathematical Theory of Saving](#)," EJ, December 1928, 38, 152, 543-559

Cass, D., "[Optimum Growth in an Aggregative Model of Capital Accumulation](#)," RES, July 1965, 32, 233-240

* Prescott, E. C., "[Theory Ahead of Business Cycle Measurement](#)," Quarterly Review, Federal Reserve Bank of Minneapolis, Fall 1986, 9-22

Part 1: Economic Growth

1.1 Basic Growth Models

The linear and convex growth models. Models of growth based on physical and human capital externalities. Two-sector growth models. Models of product variety and quality ladders. The factor bias of technical change.

* BS, Chapters 4-7

Romer, P. M., "[Increasing Returns and Long-Run Growth](#)," JPE, October 1986, 94, 5, 1002-1037

Lucas, R.E., "On the Mechanics of Economic Development," JME, July 1988, 22, 1, 3-42

* Rebelo, S., "[Long-Run Policy Analysis and Growth](#)," JPE, June 1991, 99, 3, 500-521

Barro, R.J., "[Government Spending in a Simple Model of Endogenous Growth](#)," JPE, October 1990, 98, 5, part 2, 103-125

Jones, L. and R. Manuelli, "[A Convex Model of Equilibrium Growth](#)," JPE, October 1990, 98, 1008-1038

Romer, P.M., "[Endogenous Technological Change](#)," JPE, October 1990, 98, 5, part 2, 71-102

Aghion, P. and P. Howitt, "[A Model of Growth Through Creative Destruction](#)," Econometrica, March 1992, 60, 2, 323-351

* Acemoglu, D., "[Labor- and Capital-Augmenting Technical Change](#)," NBER W7544, February 2000

1.2 Savings and Fiscal Policy

The life-cycle hypothesis. The overlapping generations model. Dynamic efficiency, Pareto optimality and the golden rule. Bubbles, existence and implications. The effects of government debt and Ricardian equivalence.

* BF, Chapter 3, sections 3.1 and 3.2; Chapter 4, section 4.1 and Chapter 5, sections 5.1 and 5.2

* Modigliani, F., "[Life Cycle, Individual Thrift, and the Wealth of Nations](#)," AER, June 1986, 76, 3, 297-313

Samuelson, P.A., "[An Exact Consumption Loan Model of Interest with and without the Social Contrivance of Money](#)," JPE, December 1958, 66, 6, 467-482

Diamond, P.A., "[National Debt in a Neoclassical Growth Model](#)," AER, December 1965, 55, 5, 1126-1150

Cass, D., "On Capital Overaccumulation in the Aggregate, Neoclassical Model of Economic Growth: A Complete Characterization," JET, 1972, 4, 200-223

Tirole, J., "[Asset Bubbles and Overlapping Generations](#)," Econometrica, November 1985, 53, 6, 1499-1528

* Barro, R.J., "[Are Government Bonds Net Wealth?](#)" JPE, December 1974, 82, 6, 1095, 1117

1.3 The Cross-country Evidence

The historical evolution of the world income distribution. Growth regressions: findings and problems. Growth accounting and its interpretation.

Maddison, A., [Monitoring the World Economy, 1820-1992](#), Development Center Studies, OECD, Paris, 1995.

* Pritchett, L., "[Divergence, Big Time](#)," JEP, Summer 1997, 11, 3, 3-17

Summers, R. and A. Heston, "[The Penn World Table \(Mark 5\): An Expanded Set of International Comparisons, 1950-1988](#)," QJE, May 1991, 106, 2, 327-368

* Jones, C.I., "[On the Evolution of the World Income Distribution](#)," JEP, Summer 1997, 11, 3, 19-36

* BS, Chapter 10, section 10.4; Chapter 11, section 11.1; and Chapter 12

* Hall, R. and C.I. Jones, "[Why Do Some Countries Produce So Much Output per Worker Than Others](#)," QJE, February 1999, 114, 1, 83-116

Klenow, P.J., and A. Rodríguez-Clare, "The Neoclassical Revival in Growth Economics: Has it Gone Too Far?" NBER Macroeconomics Annual, 1997

Acemoglu, D., S. Johnson and J.A. Robinson, "[The Colonial Origins of Comparative Development: An Empirical Investigation](#)," NBER W7771, June 2000

1.4 Capital Flows, Trade and Technology Transfer

The effects of capital flows on growth and the world income distribution. Why doesn't capital flow from rich to poor countries? The role of commodity trade: Rybcyncki and terms-of-trade effects. Learning-by-doing and leapfrogging. Models of technology transfer and imitation.

* BF, Chapter 3, sections 3.3 and 3.4

* BS, Chapter 3, sections 3.1 and 3.4

Blanchard, O., "[Debt, Deficits and Finite Horizons](#)," JPE, April 1985, 93, 2, 223-247

Kraay, A., N. Loayza, L. Servén and J. Ventura, "[Country Portfolios](#)," NBER W7795, July 2000

* Ventura, J., "Growth and Interdependence," QJE, February 1997, 112, 1, 57-84

* Acemoglu, D. and J. Ventura, "[The World Income Distribution](#)," NBER W8083, January 2001

Young, A., "[Learning-by-doing and the Dynamic Effects of International Trade](#)," QJE, May 1991, 106, 2, 369-406

* Brezis, E., P.R. Krugman, and D. Tsiddon, "[Leapfrogging in International Competition: A Theory of Cycles in National Technological Leadership](#)," AER, December 1993, 83, 5, 1211-1219

Grossman, G.M. and E. Helpman, "[Comparative Advantage and Long-Run Growth](#)," AER, September 1990, 80, 4, 796-815

* Krugman, P.R., "[A Model of Innovation, Technology Transfer, and the World Distribution of Income](#)," JPE, April 1979, 87, 2, 253-266

Grossman, G.M. and E. Helpman, "[Endogenous Product Cycles](#)," Economic Journal, September 1991, 101, 408, 1214-1229

Part 2: Economic Fluctuations

2.1 Cycles and Trends: Some Facts

Shocks and propagation mechanisms. World representation. ARMA's, VAR's, SVAR's. Stochastic trends. Covariances. The co-movement of GDP components. The correlations of output and money. The correlation between real wages and output.

* BF, Chapter 1

* Stock, J. and Watson, M., "Business Cycle Fluctuations in U.S. Macroeconomic Time Series," Chapter 1, Volume 1A, Handbook of Macroeconomics, John Taylor and Michael Woodford eds, North Holland, 1999

Abraham, K. and J. Haltiwanger, "[Real Wages and the Business Cycle](#)," JEL, September 1995, volume 33-3, 1215-1264

Christiano, L., Eichenbaum M., and C. Evans, "The Effects of Monetary Policy Shocks: Evidence from the Flow of Funds," REStat, February 1996, 78-1, 16-34

2.2 Technological Shocks?

Dynamic effects of technological shocks. Endogenizing the labor supply. The cyclical behavior of total factor productivity growth. Booms, rents, and incentives. Implementation cycles and the current high tech boom.

* BF, Chapter 7

* King, R. and S. Rebelo, "Resuscitating Real Business Cycles," Chapter 14, Volume 1B, Handbook of Macroeconomics, J. Taylor and M. Woodford eds, North Holland, 927-1007

* Campbell J., Inspecting the Mechanism: An Analytical Approach to the Stochastic Growth Model, JME, 33, June 1994, 463-506

Basu, S. and Fernald, J., "[Why is productivity procyclical? Why do we care?](#)" NBER W7940, October 2000

Helpman, E. and M. Trajtenberg, "A time to sow and a time to reap: Growth based on general purpose technologies," Chapter 3 in [General Purpose Technologies and Economic Growth](#), Elhanan Helpman ed, MIT Press 1998, 55-84

Shleifer, A., "[Implementation Cycles](#)," JPE, 94-6, December 1986, 1163-1190

Jorgenson, D. and K. Stiroh, "Raising the speed limit: U.S. economic growth in the information age," BPEA, 2000-1, 125-235

2.3 Money and Nominal Rigidities

Money flows and the demand for money. Cash-in-advance models. Money in the utility function. The effects of money growth on capital accumulation. Dynamics of hyperinflation. The Cagan model. The budget deficit and money growth. Why does money affect output? What about other shifts in aggregate demand? Nominal rigidities, money and output. Time-dependent, and state-dependent rules. Indexation. Macro-implications of the choice of numeraire.

* BF, Chapter 4, sections 4.3 to 4.7; and Chapter 10, section 10.2

* Blanchard, O., “Why Does Money Affect Output? A Survey,” in B.M. Friedman and F.H. Hahn eds, *Handbook of Monetary Economics*, North Holland, 1990, 779-835 (BF, Chapter 8)

* Taylor, J., “Staggered price and wage setting in macroeconomics,” Chapter 15, *Handbook of Macroeconomics*, Volume 1B, North Holland, 1999, J. Taylor and M. Woodford eds, 1009-1050

Kimball, M., “The Quantitative Analytics of The Basic Neomonetarist Model,” *JMCB*, November 1995, 27-4-2, 1241-1289

Woodford, M., “Optimizing models with nominal rigidities,” Chapter 3, mimeo, Princeton, January 2001

Chari, V.V., P. Kehoe, and E. McGrattan, “[Sticky Price Models of the Business Cycle: Can the Contract Multiplier Solve the Persistence Problem](#),” FRB of Minneapolis staff paper 217, May 1998

* Mankiw, N.G., “[The inexorable and mysterious trade-off between inflation and unemployment](#)”, mimeo Harvard 2000

2.4 Tools for the Road: ISLM, IS-PC-IR, Mundell-Fleming

Looking at equilibrium in goods, labor, and financial markets. Expectations, investment, and consumption. The stock market and output. The perverse effects of

fiscal policy. Liquidity traps and monetary policy. Exchange rates, interest rates, and output. Monetary policy and inflation targeting.

* McCallum, B., and E. Nelson, "[An Optimizing IS-LM Specification for Monetary Policy and Business Cycle Analysis](#)," NBER W5875, January 1997

Woodford, M., "[A neo-Wicksellian framework for the analysis of monetary policy](#)," Chapter 4, Sections 1 and 2, mimeo Princeton, September 2000

* Blanchard, O., "[Output, The Stock Market, and Interest Rates](#)," AER, March 1981, 71-1, 132-143.

Giavazzi, F., and M. Pagano, "[Non-Keynesian Effects of Fiscal Policy Changes: International Evidence and the Swedish Experience](#)," NBER W5332, October 1996.

Alesina, A., S. Ardagna, R. Perotti, F. Schiantarelli, "[Fiscal Policy, Profits, and Investment](#)," NBER WP 7207, July 1999

* Krugman, P. "[It is baaack: Japan's Slump and the Return of the Liquidity Trap](#)," BPEA, 1998-2, 137-201

Orphanides, A. and V. Wieland, "[Price stability and monetary policy effectiveness when nominal interest rates are bounded at zero](#)," Finance and Economics Discussion Series, 1998-35, August 1998, Federal Reserve Board

Tobin, J. "[Keynesian models of recession and depression](#)," AER, 65-2, May 1975, 195-202

* Dornbusch, R., "[Expectations and Exchange Rate Dynamics](#)," JPE, December 1976, 84, 1161-1176.

* Obstfeld, M., and Rogoff, K., "[Exchange Rate Dynamics Redux](#)," JPE, June 1995.

Jeanne, O. "Currency Crises: A Perspective on Recent Theoretical Developments," CEPR DP 2170, June 1999

Clarida, R., J. Gali, and M. Gertler, "[The Science of Monetary Policy: A New Keynesian Perspective](#)," NBER W7147, May 1999