

Business Cycles

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This is a first year course for students in the M.Sc in Economics. The purpose of this course is to introduce students with the basic models used to study macroeconomic fluctuations.

The course is organized around six main topics. The first three are taught by Aude Pommeret (on Thursday) and the remaining ones by Giovanni Favara (on Wednesday).

The extensive reading list is provided as a guide to those interested in understanding not only the basic concepts but also pursuing research in these topics.

There will be 4 Problem Sets (PS) and a final exam. The PSs count for 50% of the final grade, and the final exam for the remaining 50%. If the grade at the final exam is higher than the computed weighted average, the final grade only will be counted. The same exact conditions apply for an eventual make-up exam. Please, note that students which have not handed in the three PSs are not eligible for a final exam.

1) Introducing Modern Business Cycle Theory (1 class)

1a) The Modern Business Cycle Theory Within the Context of Macroeconomic Theory

Required Readings

Mankiw G. (1990), "A Quick Refresher course in Macroeconomics", *Journal of Economic Literature*, vol 28, p.1645-1660, [PDF](#)

Blanchard, O., (2000), "What Do We Know About Macroeconomics that Fisher and Wicksell Did Not?" *Quarterly Journal of Economics* 115, no. 4, p.1375-1410, [PDF](#)

Related Readings

Mankiw, G. (2006), "The Macroeconomist as Scientist and Engineer", *Journal of Economic Perspectives* Vol. 20, No. 4, [PDF](#)

Danthine J-P, (1997), "In search of a successor to IS-LM", *Oxford Review of Economic Policy*, 13(3), p135-144, [PDF](#).

Lucas R., (1980), "Methods and Problems in Business Cycle Theory", *Journal of Money, Credit and Banking*, 12(4), p696-715, [PDF](#).

Other references

Ball L., Mankiw G. and Romer D. (1988), «The New Keynesian Economics and the Output-Inflation Trade-off», *Brookings Papers on Economic Activity*, n°1 ; p. 1-65.

Ball L. and Romer D., (1990), "Real Rigidities and the Non-neutrality of Money", *Review of Economic Studies*, 57(2).

Barro R., (1978), "Unanticipated money, output and the price level in the US", *Journal of Political Economy*.

Barro R. and Grossman H., (1971), "A General Disequilibrium Model of Income and Employment", *The American Economic Review*, Vol. 61, No. 1. pp. 82-93.

Brunner Cukierman and Meltzer (1980), "Stagflation, persistent unemployment and the permanence of economic shocks").

Fischer S., (1977), "Long-Term Contracts, Rational Expectations, and the Optimal Money Supply Rule", *Journal of Political Economy*, Vol. 85, No. 1., pp. 191-205.

Friedman M., (1968), "The Role of Monetary Policy", *The American Economic Review*, Vol. 58, No. 1. pp. 1-17.

Hall R., (1978), "Stochastic Implications of the Life Cycle-Permanent Income Hypothesis: Theory and Evidence", *The Journal of Political Economy*, Vol. 86, No. 6., pp. 971-987.

Katz L, (1986). "Efficiency Wage Theories: A Partial Evaluation," *NBER Macroeconomics Annual*, 1, pp. 235-76.

King R. And C. Plosser, (1984), "Money, Credit, and Prices in a Real Business Cycle", *The American Economic Review*, Vol. 74, No. 3., pp. 363-380.

Kydland F. and Prescott E., (1977), "Rules Rather than Discretion: The Inconsistency of Optimal Plans", *The Journal of Political Economy*, Vol. 85, No. 3., pp. 473-492.

Long J. and Plosser C., (1983), "Real Business Cycles", *The Journal of Political Economy*, Vol. 91, No. 1. pp. 39-69.

Lucas R., (1972), "Expectations and the neutrality of money", *Journal of Economic Theory*

Lucas R., (1973), "Some International Evidence on Output-Inflation Tradeoffs", *The American Economic Review*, Vol. 63, No. 3., pp. 326-334.

Lucas, R. (1975), "An equilibrium model of the business cycle" *Journal of Political Economy*.

Sargent T. and Wallace N., (1975), "Rational" Expectations, the Optimal Monetary Instrument, and the Optimal Money Supply Rule", *The Journal of Political Economy*, Vol. 83, No. 2., pp. 241-254.

Taylor J., (1980), "Aggregate Dynamics and Staggered Contracts", *The Journal of Political Economy*, Vol. 88, No. 1. (Feb., 1980), pp. 1-23.

1b) Fluctuations and facts

Required Readings

Baxter M., and King R: (1999), " Measuring Business Cycles: Approximate Band-Pass Filters for Economic Time Series ", *Review of Economics and Statistics*, 81(4), p. 575–593, [PDF](#)

Stock, J., and M. Watson. "Business Cycle Fluctuations in U.S. Macroeconomic Time Series." Chapter 1 in *Handbook of Macroeconomics*. Vol 1A. Edited by J. Taylor and M. Woodford. North Holland, 1999, [PDF](#)

King, R., and S. Rebelo. "Resuscitating real Business Cycles" Chapter 14 in *Handbook of Macroeconomics*. Vol 1A. Edited by J. Taylor and M. Woodford. North Holland, 1999, [PDF](#)

Cooley, T.H., and E.C. Prescott, "Economic Growth and Business Cycles", chapter 1 in *Frontiers of Business Cycle Research*, T. Cooley, Editor, (1995)

Related Readings

Campbell J. and Mankiw G., (1987), "Permanent and Transitory Components in Macroeconomic Fluctuations," *American Economic Review*, vol. 77(2), p.111-17, [PDF](#)

Hodrick, R. and Prescott E., (1997). "Postwar U.S. Business Cycles: An Empirical Investigation," *Journal of Money, Credit and Banking*, vol. 29(1), p.1-16, [PDF](#).

Stock, J., and M. Watson. "Variable Trends in Economic Time Series." *Journal of Economic Perspective* 2, no. 3 (Summer 1988): 147-174, [PDF](#)

Stock, J., and M. Watson. "Has the Business Cycle Changed? Evidence and Explanations (August 2003) [PDF](#)

2) The Real Business Cycle Model (3 classes)

2a) The Basic Model

Required Readings

Campbell John (1994) " Inspecting the Mechanism: An analytical approach to the stochastic growth model", *JME* 33, 463-506, [PDF](#)

Blanchard O., and S. Fisher, "Lectures on Macroeconomics" Ch. 9, pages 478-488.

Related reading

Romer, D. (2001), *Advanced Macroeconomics*, chapter 4, part B, and chapter 7.
Ljungqvist L. and T. Sargent, *Recursive Macroeconomic Theory*, 2004. Chapter 1

Uhlig, Harald, "A toolkit for analyzing nonlinear dynamic stochastic models easily," in

Ramon Marimon and Andrew Scott, eds, *Computational Methods for the Study of Dynamic Economies*, Oxford University Press, Oxford (1999), 30-61, [PDF](#)

2b) Endogenous Labor Supply

Required readings

King, R., and S. Rebelo. "Resuscitating Real Business Cycles." Chapter 14 in *Handbook of Macroeconomics*. Vol. 1B. Edited by J. Taylor and M. Woodford. Amsterdam, Netherlands, New York, NY, North Holland, Netherlands: Elsevier, 1999, pp. 927-1007, [PDF](#)

Campbell John (1994) "Inspecting the Mechanism: An analytical approach to the stochastic growth model", *JME* 33, 463-506, [PDF](#)

2c) Evaluation of RBC models

Required Readings

Prescott, E. C. "Theory Ahead of Business Cycle Measurement." *Federal Reserve Bank of Minneapolis Quarterly Review* 10, no. 4 (Fall 1986): 9-22, [PDF](#)

Summers, H. L. "Some Skeptical Observation on Real Business Cycle Theory", *Federal Reserve Bank of Minneapolis Quarterly Review* 10, no. 4 (Fall 1986): 23-27, [PDF](#)

Prescott, E..C. "Response to a Skeptic" *Federal Reserve Bank of Minneapolis Quarterly Review*, 10, no. 4 (Fall 1986): 28-32, [PDF](#)

Manuelli, R.E., 1986, Modern Business Cycle Analysis: A Guide to the Prescott-Summers Debate, *Federal Reserve Bank of Minneapolis Quarterly Review*, Fall, pp. 3-8, [PDF](#)

Plosser C. "Understanding Real Business Cycles", *Journal of Economic Perspective*, Vol. 3, No. 3 (Summer 1989) pages 51-77, [PDF](#)

Mankiw G. "Real Business Cycles: A New Keynesian Perspective", *Journal of Economic Perspective*, Vol. 3, No. 3 (Summer 1989) pages 79-90, [PDF](#)

Kydland, F., and E. Prescott's "Contribution to Dynamic Macroeconomics." Section 3 in *Advance Information on the Bank of Sweden Prize in Economic Sciences*, 2004, [PDF](#)

Related Readings

King, R., C. Plosser and Sergio Rebelo. "Production, growth and Business Cycles: I. The Basic Neoclassical Model", *Journal of Monetary Economics* 21, 195–232.

King, R.G., Plosser, C.I., e Rebelo, S.T., 1988b, Production, Growth and Business Cycles: II. New Directions, *Journal of Monetary Economics*, Vol. 21, pp. 309-341

Sergio Rebelo, "Real Business Cycle Models: Past, Present, and Future," NBER Working Paper No. W1140, [PDF](#)

Burnside, C., Eichenbaum, M., Rebelo, S., 1993. Labor hoarding and the business cycle. *Journal of Political Economy* 101, 245-273. [PDF](#)

Boldrin, M. L. J. Christiano, and J Fisher ‘Asset Pricing Lessons for Modeling Business Cycles,’ *American Economic Review*, 2001, [PDF](#)

Christiano L. and T. J. Fitzgerald, “The business cycle: It’s still a puzzle”, *Economics Perspective: Federal Reserve Bank of Chicago*, 2001, [PDF](#)

Fisher, J. “The new view of growth and business cycles” *Economics Perspective: Federal Reserve Bank of Chicago*, 2001, [PDF](#)

Gabaix, X. 2005, “The granular origins of aggregate fluctuations”, MIT Working Paper.

Nakamura, E. “Deconstructing the Success of RBC” mimeo Harvard University.

2d) Time Series Representations of the Business Cycle

Cogley, T., and J. Nason, “Impulse Dynamics and Propagation Mechanism in a Real Business Cycle Models”, *Economics Letters*, vol. 43(1) pp. 77-81, 1993,

Cogley, T., and J. Nason, “Output Dynamics in Real Business Cycle Models”, *American Economic Review*, vol. 85 492-511, 1995, [PDF](#)

Acemoglu, D., Scott, A., “Asymmetric business cycles: Theory and time-series evidence”, *Journal of Monetary Economics*, 40, 510-533, 1997, [PDF](#)

Cochrane, J., “Shocks”, *Carnegie-Rochester Conference Series on Public Policy* 41, 295-364, 1994, [PDF](#)

3) Labor Market and Money (2 classes)

3a) Labor Market : Neo-classical and Search

Required readings

Baxter M. and King R. (1991), “Productive Externalities and Business Cycles”, *Federal reserve Bank of Minneapolis*, DP53, [PDF](#)

Burnside C., Christiano, M. Rebelo S.(1993), “Labor Hoarding and the Business Cycle,”, *Journal of Political Economy*, 101(2), p.245-273. [PDF](#)

Christiano L. and Eichenbaum M., (1992), “Current Real-Business-Cycle Theories and Aggregate Labor-Market Fluctuations” , *American Economic Review*, 82(3),p.430-450. [PDF](#)

King, R., and Rebelo S. (1999), "Resuscitating Real Business Cycles." Chapter 14 in *Handbook of Macroeconomics*. Vol. 1B. Edited by J. Taylor and M. Woodford. Amsterdam, Netherlands, New York, NY, North Holland, Netherlands: Elsevier, 1999, pp. 927-1007, [PDF](#)

Hansen, G.D., (1985), "Indivisible Labor and the Business Cycle," *Journal of Monetary Economics*, Vol. 16, pp. 309-327.

Rogerson, R., (1988), Indivisible Labor, Lotteries and Equilibrium, *Journal of Monetary Economics*, Vol. 21, pp. 3-16.

Related Readings

Hansen, Gary D. and Randall Wright (1992): "The Labor Market in Real Business Cycle Theory." *Federal Reserve Bank of Minneapolis Quarterly Review*, **10**, [PDF](#)

Kydland "Business Cycles and Aggregate Labor Market Fluctuations": in Cooley T, eds. *Frontiers of Real Business Cycles*, 1995, Chapter 5.

3b) Introducing Money

Required Readings

Walsh C. *Monetary Theory and Policy*, Second Edition, MIT press, 2006, Chapter 1, 2, 3.

Ljungqvist L. and T. Sargent, *Recursive Macroeconomic Theory*, 2004. Chapter 24

Cooley, T. F. and G. D. Hansen "The Inflation Tax in a Real Business Cycle Model", 1989, *American Economic Review* 79, 733—748, [PDF](#)

Cooley, T. F. and G. D. Hansen "Money and the business cycle." In T. F. Cooley (Ed.), *Frontiers of Business Cycle Research*. Princeton, Princeton University Press, 1995.

4) Monopolistic Competition and the New Keynesian Model (3 Classes)

4a) Monopolistic Competition and Price Rigidities

Required Readings

Blanchard, O. J. and S. Fischer (1989) *Lectures on Macroeconomics*. Chapter 8. Cambridge, MA, The MIT Press.

Romer, D. (1996). *Advanced Macroeconomics*. Chapter 6. New York, McGraw-Hill.

Walsh C. *Monetary Theory and Policy*, Second Edition, MIT press, 2006, Chapter 5.

Woodford, M. "Optimizing Models with Nominal Rigidities. Inflation Dynamics with Staggered Price Setting." Chapter 3 in *Interest Rate and Prices*, *Princeton University Press*.

Gali, J. "The Basic New Keynesian Model" Chapter 3 (2006) *manuscript*, [PDF](#)

Related Readings

Ball, Laurence, and David Romer (1990): "Real Rigidities and the Non-Neutrality of Money", *Review of Economic Studies*, 57:183-203 [PDF](#)

Ball, Laurence, and N.Gregory. Mankiw (1994): "A Sticky-Price Manifesto", *Carnegie-Rochester Conference Series*, December, [PDF](#)

Taylor, J. B. (1998). Staggered price and wage setting in macroeconomics. In J. B. Taylor and M. Woodford (Eds.), *Handbook of Macroeconomics*, [PDF](#)

Calvo, G. ."Staggered Prices in a Utility Maximizing Framework" *Journal of Monetary Economics*, 12(3), 383-398, September 1983.

Bils, M., ."The Cyclical Behavior of Marginal Cost and Price," *American Economic Review*, 77(5), 838-855, December 1987, [PDF](#)

Rotemberg, J.J. and M. Woodford "The Cyclical Behavior of Prices and Costs," *Handbook of Macroeconomics*, Chapter 16, 1(2), 1051-1135, 1999, [PDF](#)

Bils, M. and P.J. Klenov, .Some Evidence on the Importance of Sticky Prices, *Journal of Political Economy*, 112(5), 947-985, 2004, [PDF](#)

Golosov, M. and R.E. Lucas, "Menu Costs and the Phillips Curve".MIT Mimeo, 2006.

Dotsey, M., R.G. King, and A.L. Wolman, "State Dependet Pricing and the General Equilibrium Dynamics of Money and Output" *Quarterly Journal of Economics*, 114(2), 655-690, May 1999.

4b) The New Keynesian Model

Required Readings

Gali, J. "The Basic New Keynesian Model" Chapter 3 (2006) *manuscript*, [PDF](#)

King, R. And M. Goodfriend., "The Neo Neoclassical Synthesis", *NBER Macro Annual* 1997, [PDF](#)

Gali, J. "New Perspectives on Monetary Policy, Inflation, and the Business Cycle.", in *Advances in Economic Theory*, edited by: M. Dewatripont, L. Hansen, and S. Turnovsky, vol. III, 151-197, Cambridge University Press 2003. Also available as *NBER WP 8767* (February 2002), [PDF](#)

Related Readings

King, R. "The New IS-LM model: Language, Logic, and Limits." *Economic Quarterly* 86, no. 3 (Summer 2000): 45-103. (Federal Reserve Bank of Richmond.), [PDF](#)

McCallum, B. T. and E. Nelson, "An optimizing IS-LM specification for monetary policy and business cycle analysis.", 1999, *Journal of Money, Credit, and Banking* 31, [PDF](#)

Woodford, M. Chapter 4 in *Interest & Prices: Foundations of a Theory of Monetary Policy*, Princeton University Press 2003, Princeton, NJ

Chari, V.V., Partick J. Kehoe and Ellen R. McGrattan (1996): "Sticky Price Models of the Business Cycle: Can the Contract Multiplier Solve the Persistence Problem?", *Econometrica* 68(5), 1151—1180, [PDF](#)

Christiano, L. J., M. Eichenbaum, and C. L. Evans “Nominal rigidities and the dynamic effects of a shock to monetary policy.” 2005, *Journal of Political Economy* 113(1), 1-45, [PDF](#)

4c) Monetary Policy

Required Readings

Walsh Carl: *Monetary Theory and Policy*, Second Edition, MIT press, 2006, Chapter 1

Christiano, L., M. Eichenbaum, and C. Evans. "Monetary Policy Shocks: What Have We Learned and to what End?" *Handbook of Macroeconomics*. Edited by J. Taylor and M. Woodford. vol. 1A. Amsterdam, Netherlands, New York, NY, North Holland, Netherlands: Elsevier, 1999, pp. 65-148. ISBN: 0444501568, [PDF](#)

Clarida, R., J. Gali, and M. Gertler. "The Science of Monetary Policy: A New Keynesian Perspective." *Journal of Economic Literature* (December 1999): 1661-1707, [PDF](#)

Clarida, R., J. Galí, and M. Gertler “Monetary policy rules and macroeconomic stability: Evidence and some theory,” , 2000 *Quarterly Journal of Economics* 115, 147-180, [PDF](#)

Recommended Readings

Goodfriend, M. “Monetary policy in the New Neoclassical Synthesis: A Primer,” mimeo Federal Bank of Richmond, September 2002, [PDF](#)

Rotemberg J. and M. Woodford, “An Optimization based Econometric Framework for the Evaluation of the Monetary Policy” *NBER Macro Annual* 1997, [PDF](#)

Woodford, M, *Interest and Prices*. Chapter 5, *Foundations of a Theory of Monetary Policy*, 2003 Princeton University Press

5) Labor Market Frictions : the Matching Model (2 classes)

Pissarides, C., *Equilibrium Unemployment Theory*, 2nd edition. MIT Press.

Hall, R., 1999. Labor market frictions and employment fluctuations. *Handbook of Macroeconomics* (ch. 17), Vol. 1, J.B. Taylor and M. Woodford, eds., Amsterdam: Elsevier Science

Mortensen and Pissarides 1999. Job reallocation, employment fluctuations, and unemployment, in Handbook of Macroeconomics (ch. 18), Vol. 1B, Elsevier Science.

Woodford, M. "Structural Slumps," *Journal of Economic Literature*, 32(4), 1784-1815, December 1994.[PDF](#)

Davis, S., Haltiwanger, J., 1992. Gross job creation, gross job destruction, and employment reallocation. *Quarterly Journal of Economics* 107, 819-863.[PDF](#)

Davis, S., Haltiwanger, J., and Schuh, S., 1996. Job creation and destruction. Chapters 1 and 2. Cambridge: MIT Press.

Andolfatto, D., 1996. Business cycles and labor-market search. *American Economic Review* 86 112-132.[PDF](#)

Haan den, W., Ramey, G., and Watson, J., 2000. Job destruction and propagation of shocks. *American Economic Review* 90, 482-498.[PDF](#)

Cole, H., Rogerson, R., 1999. Can the Mortensen-Pissarides matching model match the business cycle facts? *International Economic Review* 40, 933-959.[PDF](#)

Ramey, G., Watson, J., 1997. "Contractual fragility, job destruction, and business cycles." *Quarterly Journal of Economics* 112, 873-911.[PDF](#)

6) Credit Markets and Business Cycles (2 classes)

Required Readings

Bernanke, B. and M.Gertler, "Agency Costs, Net Worth, and Business Fluctuations," *American Economic Review*, 79(1), 14-31, March 1989.

Kiyotaki, N. and J.Moore, "Credit Cycles," *Journal of Political Economy*, 105(2), 211-248, April 1997.

Carlstrom, C. and T. Fuerst "Agency Costs, Net Worth, and Business Fluctuations: A Computable General Equilibrium Analysis," *American Economic Review*, 87, (December, 1997) pp. 893-910.

Bernanke, B., M. Gertler and S. Gilchrist "The Financial Accelerator in a Quantitative Business Cycle Framework," in Handbook of Macroeconomics, Vol. 1, edited by J.B. Taylor and M. Woodford, 1999, pp. 1341-1393.

Related Readings

Blanchard O., and S. Fisher, "*Lectures on Macroeconomics*" Ch. 9, pages 478-488.

Romer, David (1996): *Advanced Macroeconomics*, Chapter 8. New York: McGraw-Hill,

Gertler, M. "Financial Structure and Aggregate Economic Activity: An Overview", *Journal of Money Credit and Banking*, August 1988 pp. 559-596.

Bernanke, B. "Credit in the Macroeconomy", *Quarterly review*, Federal Reserve Bank of New York, (Spring 1993), 50-70.

Bernanke, B. and M.Gertler, "Financial Fragility and Economic Performance", *Quarterly Journal of Economics*, 105 (Feb. 1990), 87-114.

Bernanke, B., M. Gertler and S., Gilchrist "The Financial Accelerator and the Flight to Quality"- *The Review of Economics and Statistics* (February, 1996) Vol. 1.

Reichlin, P., "Credit Markets, Intermediation and the Macroeconomy," in Boot and Thakor (eds.), *Credit, Intermediation, and the Macroeconomy: Readings and Perspectives in Modern Financial Theory*, Oxford: OUP, 2004.

Kocherlakota, N. "Creating Business Cycles Through Credit Constraints" in *Quarterly Review*, *Federal Reserve Bank of Minneapolis*, 24, No. 3, Summer 2000.

Gomes, J. F, A Yaron and L. Zhang "Asset Prices and Business Cycles with Costly External Finance," *Review of Economic Dynamics*, Oct 2003