

Economics 861.01

Monetary Theory I

Syllabus

Professor Sanjay Chugh

Fall 2013

Meetings: Tuesdays 10:30am-11:45am, Thursdays, 10:30am-11:45am
Maloney Hall 429

Email address: sanjay.chugh@bc.edu

Prerequisites: The first-year economics Ph.D. sequence (in particular, EC750.01 and 751.01). Auditors and other upper-level students welcome, but are expected to actively participate in both class discussion and assignments.

Grading: The final course grade will be based on:

1. Completing a “computational primer:” solving computationally for the deterministic steady state of a few versions of the basic RBC model – **10% of final grade.**
2. Computationally solving and simulating the basic RBC model, tabulating business cycle statistics, etc. (written as a complete, stand-alone paper) – **20% of final grade.**
3. Two other projects to be assigned during the course, each of which will be computationally and/or analytically oriented (each written as a complete, stand-alone paper) – **(each 20% of final grade).**
4. In-class presentation of a paper (from a designated set of papers) – **20% of final grade.**
5. Assorted assignments, short writing pieces, quizzes, etc – **10% of final grade.**

Reference Texts: Some “all-purpose” macroeconomics and monetary economics texts that are likely to be useful to have on your shelf:

1. *Frontiers of Business Cycle Research*, 1995. Edited by Thomas F. Cooley. Princeton University Press.
2. *Equilibrium Unemployment Theory*, 2nd edition, 2000. By Christopher A. Pissarides. MIT Press.
3. *Labor Markets and Business Cycles*, 2010. By Robert Shimer. Princeton University Press.
4. *Recursive Macroeconomic Theory*, 3rd edition, 2012. By Lars Ljungqvist and Thomas J. Sargent. MIT Press.
5. *Recursive Methods in Economic Dynamics*, 1989. By Nancy L. Stokey and Robert E. Lucas, Jr., with Edward C. Prescott. Harvard University Press.

Objectives: There are three main objectives for the course.

1. First, the course will trace through some seminal branches of macroeconomic theory over the past 30 years. Most of the emphasis will be on business cycle modeling, which was the proximate cause of the revolution in macroeconomics 30 years ago, and macro-labor issues. We will trace these arcs of thought through to modern quantitative partial equilibrium and general equilibrium business cycle models, and identify/examine where some of the current research frontiers lie.
2. A second fundamental objective is to either get started on or continue becoming comfortable with computational solutions of partial equilibrium and general equilibrium business cycle models. Beyond the simplest of models, modern macroeconomics is computationally intensive. We will study basic tools that macroeconomists typically use to approximate and solve business cycle models. This means “rolling up your sleeves” and learning (if you do not know already) some basic programming and computing techniques. Our laboratory for developing computational techniques will first be the baseline RBC model, and then we will progress to models that introduce various departures from the baseline competitive RBC model.
3. Third, a necessary condition to be a successful economist (not just a successful macroeconomist) is effective communication skills, both written and spoken. It is never too early to begin (or continue) developing such skills. I will insist that all assignments/projects be written as if they were small “papers,” with a clear motivation laid out at the outset, a clear presentation of the model(s) used, a clear description of the methodology employed, effective presentation of and discussion of results, and so on. The required in-class presentation of a paper (from among the set of papers I will designate as “student presentation”) also fosters this objective.

In all written submissions of papers, the following should be completely clear after the abstract and the first two paragraphs of your paper: the basic question your paper/project addresses; the big-picture answer(s) your paper provides; why this ought to be of interest to macroeconomists; and (related) how/along what dimensions your work advances the relevant field of knowledge. If, after reading the first two paragraphs of your submission, I judge that you have not clearly explained these basics, your paper will be returned to you ungraded for you to improve and resubmit.

Outline of Topics: The following is a list of topics and references. Due to time constraints, we will certainly not be able to cover all of these topics. Nevertheless, the topics we skip are, in my view, important ones in macroeconomics, so selected important readings for these are provided.

1. A (Brief and Partial) History of Macroeconomics and the Evolving Agenda

1. Prescott, Edward C. 2006. "Nobel Lecture: The Transformation of Macroeconomic Policy and Research." *Journal of Political Economy*, Vol. 114, pp. 203-235.
2. Lucas, Robert E. 1995. "Monetary Neutrality." Nobel Lecture.
3. Solow, Robert M. 1987. "Growth Theory and After." Nobel Lecture
4. Mankiw, N. Gregory. 2006. "The Macroeconomist as Scientist and Engineer." *Journal of Economic Perspectives*, Vol. 20, pp. 29-46.
5. Ohanian, Lee E. 2010. "The Economic Crisis from a Neoclassical Perspective." *Journal of Economic Perspectives*, Vol. 24, Fall 2010, p. 45-66.
6. Blanchard, Olivier J. 2008. "The State of Macro." NBER Working Paper No. 14259.
7. Akerlof, George A. 2007. "The Missing Motivation in Macroeconomics." *American Economic Review*, Vol. 97, pp. 5-36.
8. Kydland, Finn E. 2006. "Nobel Lecture: Quantitative Aggregate Economics." *American Economic Review*, Vol. 96, pp. 1373-1383.
9. Chari, V.V. and Patrick J. Kehoe. 2006. "Modern Macroeconomics in Practice: How Theory is Shaping Policy." *Journal of Economic Perspectives*, Vol. 20, pp. 3-28.
10. Rebelo, Sergio T. 2005. "Real Business Cycle Models: Past, Present, and Future." NBER Working Paper No. 11401.
11. Hall, Robert E. 2010. "Why Does the Economy Fall to Pieces After a Financial Crisis?" *Journal of Economic Perspectives*, Vol. 24, Fall 2010, p. 3-20.
12. Woodford, Michael. 2010. "Financial Intermediation and Macroeconomic Analysis." *Journal of Economic Perspectives*, Vol. 24, Fall 2010, p. 21-44.
13. Fuster, Andreas, David Laibson, and Brock Mendel. 2010. "Natural Expectations and Macroeconomic Fluctuations." *Journal of Economic Perspectives*, Vol. 24, Fall 2010, p. 67-84.

14. Caballeo, Ricardo. 2010. “Macroeconomics after the Crisis: Time to Deal with the Pretense-of-Knowledge Syndrome.” *Journal of Economic Perspectives*, Vol. 24, Fall 2010, p. 85-102.

2. Review of Dynamic Stochastic General Equilibrium (DSGE) Theory

15. King, Robert G. and Sergio T. Rebelo. 1999. “Resuscitating Real Business Cycles.” In *Handbook of Macroeconomics*, Vol. 1B, edited by John B. Taylor and Michael Woodford.
16. Campbell, John Y. 1994. “Inspecting the Mechanism: An Analytical Approach to the Stochastic Growth Model.” *Journal of Monetary Economics*, Vol. 33, pp. 463-506.
17. Ingram, Beth F., Narayana R. Kocherlakota, and N.E. Savin. 1994. “Explaining Business Cycles: A Multiple-Shock Approach.” *Journal of Monetary Economics*, Vol. 34, pp. 415-428.
18. McGrattan, Ellen R. 2006. “Real Business Cycles.” Federal Reserve Bank of Minneapolis Staff Report No. 370.

3. Review of / Basics of Dynamic Programming

19. Prescott, Edward C. and Rajnish Mehra. 1980. “Recursive Competitive Equilibrium: The Case of Homogeneous Households.” *Econometrica*, Vol. 48, p. 1365-1379.
20. Ljungqvist and Sargent text, Chapter 1.4, Chapter 2.2, Chapter 3, 4, 5
21. Stokey, Lucas, and Prescott textbook

4. Basic Computational Methods and Calibration

22. King, Robert G., Charles I. Plosser, and Sergio T. Rebelo. 1988. “Production, Growth, and Business Cycles I: The Basic Neoclassical Model.” *Journal of Monetary Economics*, Vol. 21, pp. 195-232.
23. King, Robert G., Charles I. Plosser, and Sergio T. Rebelo. 2002. “Production, Growth, and Business Cycles: Technical Appendix.” *Computational Economics*, Vol. 20, pp. 87-116.
24. Schmitt-Grohe, Stephanie and Martin Uribe. 2004. “Solving Dynamic General Equilibrium Models Using a Second-Order Approximation to the Policy Function.” *Journal of Economic Dynamics and Control*, Vol. 28, pp. 755-775.

25. Uhlig, Harald. 1999. "A Toolkit for Analyzing Nonlinear Dynamic Stochastic Models Easily." In *Computational Methods for the Study of Dynamic Economies*, edited by Ramon Marimon and Andrew Scott. Oxford Press.
26. Baxter, Marianne and Robert G. King. 1999. "Measuring Business Cycles: Approximate Band-Pass Filters for Economic Time Series." *Review of Economics and Statistics*, Vol. 81, p. 575-593.
27. Christiano, Lawrence J. and Terry J. Fitzgerald. 2003. "The Band Pass Filter." *International Economic Review*, Vol. 44, p. 435-465.
28. Kaldor, Nicholas. 1957. "A Model of Economic Growth." *Economic Journal*, Vol. 67, p. 591-624.
29. Kuznets, Simon. 1973. "Modern Economic Growth: Findings and Reflections." *American Economic Review*, Vol. 63, p. 247-258.
30. Brock, William A. and Leonard J. Mirman. 1972. "Optimal Economic Growth and Uncertainty: The Discounted Case." *Journal of Economic Theory*, Vol. 4, p. 479-513.
31. Hodrick, Robert J. and Edward C. Prescott. 1997. "Postwar U.S. Business Cycles: An Empirical Investigation." *Journal of Money, Credit, and Banking*, Vol. 29, pp. 1-16.

5. Quantitative Macroeconomic Models I: Early Labor and Monetary Analysis

32. Rogerson, Richard. 1988. "Indivisible Labor, Lotteries and Equilibrium." *Journal of Monetary Economics*, Vol. 21, pp. 3-16.
33. Hansen, Gary D. 1985. "Indivisible Labor and the Business Cycle." *Journal of Monetary Economics*, Vol. 16, pp. 309-327.
34. **[Student Presentation]** Mulligan, Casey B. 2001. "Aggregate Implications of Indivisible Labor." *B.E. Journal of Macroeconomics: Advances in Macroeconomics*, Vol. 1.
35. Cooley, Thomas F. and Gary D. Hansen. 1989. "The Inflation Tax in a Real Business Cycle Model." *American Economic Review*, Vol. 79, pp. 733-748.
36. Cooley, Thomas F. and Gary D. Hansen. 1991. "The Welfare Costs of Moderate Inflation." *Journal of Money, Credit, and Banking*, Vol. 23, pp. 483-503.

37. Cho, Jang-Ok and Thomas F. Cooley. 1994. "Employment and Hours Over the Business Cycle." *Journal of Economic Dynamics and Control*, Vol. 18, pp. 411-432.
38. Cooley, Thomas F. and Gary D. Hansen. 1995. "Money and the Business Cycle." In *Frontiers of Business Cycle Research*, edited by Thomas F. Cooley. Princeton University Press.

6. Quantitative Macroeconomic Models II: Unemployment

39. Pissarides, Christopher A. 2000. *Equilibrium Unemployment Theory*. MIT Press.
40. Shimer, Robert. 2010. *Labor Markets and Business Cycles*. Princeton University Press.
41. Rogerson, Richard and Robert Shimer. 2011. "Search in Macroeconomic Models of the Labor Market." *Handbook of Labor Economics*, Elsevier.
42. Rogerson, Richard, Robert Shimer, and Randall Wright. 2005. "Search-Theoretic Models of the Labor Market: A Survey." *Journal of Economic Literature*, Vol. 43, pp. 959-988.
43. Shimer, Robert. 2005. "The Cyclical Behavior of Equilibrium Unemployment and Vacancies." *American Economic Review*, Vol. 95, pp. 25-49.
44. Hall, Robert E. 2005. "Equilibrium Wage Stickiness." *American Economic Review*, Vol. 95, pp. 50-65.
45. Hagedorn, Marcus and Iourii Manovskii. 2008. "The Cyclical Behavior of Equilibrium Unemployment and Vacancies Revisited." *American Economic Review*, Vol. 98, p. 1692-1706.
46. Hosios, Arthur J. 1990. "On the Efficiency of Matching and Related Models of Search and Unemployment." *Review of Economic Studies*, Vol. 57, p. 279-298.
47. Moen, Espen. 1997. "Competitive Search Equilibrium." *Journal of Political Economy*, Vol. 105, pp. 385-411.
48. Shimer, Robert. 2012. "Reassessing the Ins and Outs of Unemployment." *Review of Economic Dynamics*, Vol. 15, p. 127-148.
49. Shimer, Robert. 2012. "Wage Rigidity and Jobless Recoveries." *Journal of Monetary Economics*, Vol. XX, p. XX.

50. **[Student Presentation]** Hall, Robert E. and Paul R. Milgrom. 2008. “The Limited Influence of Unemployment on the Wage Bargain.” *American Economic Review*, Vol. 98, p. 1653-1674.
51. **[Student Presentation]** Hall, Robert E. 2009. “Reconciling Cyclical Movements in the Marginal Value of Time and the Marginal Product of Labor.” *Journal of Political Economy*, Vol. 117, p. 281-323.
52. Pissarides, Christopher A. 2009. “The Unemployment Volatility Puzzle: Is Wage Stickiness the Answer?” *Econometrica*, Vol. 77, p. 1339-1369.
53. Andolfatto, David. 1996. “Business Cycles and Labor Market Search.” *American Economic Review*, Vol. 86, pp. 112-132.
54. Merz, Monika. 1995. “Search in the Labor Market and the Real Business Cycle.” *Journal of Monetary Economics*, Vol. 36, pp. 269-300.
55. Mortensen, Dale and Christopher A. Pissarides. 1994. “Job Creation and Job Destruction in the Theory of Unemployment.” *Review of Economic Studies*, Vol. 61, p. 397-415.
56. denHaan, Wouter J., Garey Ramey, and Joel Watson. 2000. “Job Destruction and Propagation of Shocks.” *American Economic Review*, Vol. 90, pp. 482-498.
57. Gertler, Mark and Antonella Trigari. 2009. “Unemployment Fluctuations with Staggered Nash Bargaining.” *Journal of Political Economy*, Vol. 117, p. 38-86.
58. Davis, Steven J., R. Jason Faberman, and John C. Haltiwanger. 2013. “The Establishment-Level Behavior of Vacancies and Hiring.” *Quarterly Journal of Economics*, Vol. 127, p. xx-xx.
59. Veracierto, Marcelo. 2008. “On the Cyclical Behavior of Employment, Unemployment, and Labor Force Participation.” *Journal of Monetary Economics*, Vol. 55, pp. 1143-1157.
60. **[Student Presentation]** Alvarez, Fernando and Robert Shimer. 2011. “Search and Rest Unemployment.” *Econometrica*, Vol. 79, pp. 75-122.
61. Lucas, Robert E. and Edward C. Prescott. 1974. “Equilibrium Search and Unemployment.” *Journal of Economic Theory*, Vol. 7, p. 188-209.
62. **[Student Presentation]** Aguiar, Mark, Erik Hurst, and Loukas Karabarbounis. 2013. “Time Use During the Great Recession.” *American Economic Review*, Vol. 103, pp. 1664-1696.

7. Optimal Policy: The Ramsey Approach

63. Canzoneri, Matthew, Robert Cumby, and Behzad Diba. 2011. "The Interaction Between Monetary and Fiscal Policy." In *Handbook of Monetary Economics*, Vol. 3B, edited by Benjamin M. Friedman and Michael Woodford.
64. Schmitt-Grohe, Stephanie and Martin Uribe. 2011. "The Optimal Rate of Inflation." In *Handbook of Monetary Economics*, Vol. 3B, edited by Benjamin M. Friedman and Michael Woodford.
65. Ramsey, Frank. 1927. "A Contribution to the Theory of Taxation." *Economic Journal*, Vol. 37, pp. 47-61.
66. Phelps, Edmund. 1973. "Inflation in the Theory of Public Finance." *Swedish Journal of Economics*, Vol. 75, pp. 67-82.
67. Lucas, Robert E. and Nancy L. Stokey. 1983. "Optimal Fiscal and Monetary Policy in an Economy Without Capital." *Journal of Monetary Economics*, Vol. 12, pp. 55-93.
68. Chamley, Christophe. 1986. "The Welfare Cost of Capital Income Taxation in a Growing Economy." *Econometrica*, Vol. 54, pp. 607-622.
69. Chari, V.V., Lawrence J. Christiano, and Patrick Kehoe. 1991. "Optimal Fiscal and Monetary Policy: Some Recent Results." *Journal of Money, Credit, and Banking*, Vol. 23, pp. 519-539.
70. Chari, V.V. and Patrick J. Kehoe. 1999. "Optimal Fiscal and Monetary Policy." In *Handbook of Macroeconomics*, Vol. 1C, edited by John B. Taylor and Michael Woodford.
71. Calvo, Guillermo and Pablo E. Guidotti. 1993. "On the Flexibility of Monetary Policy: The Case of the Optimal Inflation Tax." *Review of Economic Studies*, Vol. 60, pp. 667-687.
72. Schmitt-Grohe, Stephanie and Martin Uribe. 2004. "Optimal Fiscal and Monetary Policy Under Imperfect Competition." *Journal of Macroeconomics*, Vol. 26, pp. 183-209.
73. Schmitt-Grohe, Stephanie and Martin Uribe. 2004. "Optimal Fiscal and Monetary Policy Under Sticky Prices." *Journal of Economic Theory*, Vol. 114, pp. 198-230.
74. Siu, Henry E. 2004. "Optimal Fiscal and Monetary Policy with Sticky Prices." *Journal of Monetary Economics*, Vol. 51, pp. 576-607.

75. Chugh, Sanjay K. 2006. “Optimal Fiscal and Monetary Policy with Sticky Wages and Sticky Prices.” *Review of Economic Dynamics*, Vol. 9, pp. 683-714.
76. Chugh, Sanjay K. 2007. “Optimal Inflation Persistence: Ramsey Taxation with Capital and Habits.” *Journal of Monetary Economics*, Vol. 54, pp. 1809-1836.
77. Arseneau, David M. and Sanjay K. Chugh. 2008. “Optimal Fiscal and Monetary Policy with Costly Wage Bargaining.” *Journal of Monetary Economics*, Vol. 55, p. 1401-1414.
78. Arseneau, David M. and Sanjay K. Chugh. 2012. “Tax Smoothing in Frictional Labor Markets.” *Journal of Political Economy*, Vol. 120, p. 926-985.

8. Monetary Policy and Unemployment

79. Gali, Jordi. 2011. “Monetary Policy and Unemployment.” In *Handbook of Monetary Economics*, Vol. 3B, edited by Benjamin M. Friedman and Michael Woodford.
80. Blanchard, Olivier and Jordi Gali. 2010. “Labor Markets and Monetary Policy: A New Keynesian Model with Unemployment.” *American Economic Journals: Macroeconomics*, Vol. 2, p. 1-30.
81. Ravenna, Federico and Carl Walsh. 2011. “Welfare-Based Optimal Monetary Policy with Unemployment and Sticky Prices: A Linear-Quadratic Framework.” *American Economic Journals: Macroeconomics*, Vol. 3, p. 130-162.
82. Ravenna, Federico and Carl Walsh. 2012. “Monetary Policy and Unemployment: A Tax Interpretation.” *Journal of Monetary Economics*, Vol. 59, p. 180-195.

9. New Monetarist Economics

83. Williamson, Steven and Randall Wright. 2011. “New Monetarist Economics: Models.” In *Handbook of Monetary Economics*, Vol. 3B, edited by Benjamin M. Friedman and Michael Woodford.
84. Lagos, Ricardo and Randall Wright. 2005. “A Unified Framework for Monetary Theory and Policy Analysis.” *Journal of Political Economy*, Vol. 113, p. 463-484.
85. Aruoba, S. Boragan, Christopher J. Waller, and Randall Wright. 2011. “Money and Capital.” *Journal of Monetary Economics*, Vol. 58, p. 98-116.
86. Aruoba, S. Boragan. 2011. “Money, Search, and Business Cycles.” *International Economic Review*, Vol. 52, p. 935-959.
87. Aruoba, S. Boragan and Sanjay K. Chugh. 2010. “Optimal Fiscal and Monetary Policy when Money is Essential.” *Journal of Economic Theory*, Vol. 145, pp. 1618-1647.
88. Kiyotaki, Nobuhiro and Randall Wright. 1989. “On Money as a Medium of Exchange.” *Journal of Political Economy*, Vol. 97, p. 927-954.
89. Kiyotaki, Nobuhiro and Randall Wright. 1991. “A Search-Theoretic Approach to Monetary Economics.” *American Economic Review*, Vol. 83, p. 63-77.

10. Assorted / Other

90. Swanson, Eric. 2012. “Risk Aversion and the Labor Margin in Dynamic Equilibrium Models.” *American Economic Review*, Vol. 102, p. 1663-1691.
91. Chugh, Sanjay K. and Christian Merkl. 2013. “Efficiency and Labor Market Dynamics in a Model of Labor Selection.” Working paper.
92. Nakajima, Makoto. 2012. “Business Cycles in the Equilibrium Model of Labor Market Search and Self-Insurance.” *International Economic Review*, Vol. 53, p. 399-431.
93. Krusell, Per, Toshihiko Mukoyama, and Aysegul Sahin. 2010. “Labour-Market Matching with Precautionary Savings and Aggregate Fluctuations.” *Review of Economic Studies*, Vol. 77, p. 1477-1507.
94. Chugh, Sanjay K. and Fabio Ghironi. 2012. “Optimal Fiscal Policy with Endogenous Product Variety.” Working paper.