Advanced Macroeconomic Theory I

Econ. 2110   **Instructor**:   David N. DeJong
Fall 2005   4905 PH 8-2242
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                                                                          or by appointment

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Texts

Available at Pitt Book Center:

Blanchard, O.J. and Fischer, S. *Lectures on Macroeconomics*, 1989. Cambridge: MIT Press.

Romer, David *Advanced Macroeconomics*, 3rd Ed., 2005. New York: McGraw Hill Publishers.

Sargent, T.J. *Macroeconomic Theory*, 2nd Ed., 1987a. New York: Academic Press.

On Reserve (in addition to the texts listed above):

Azariadis, Costas *Intertemporal Macroeconomics*, 1993. Cambridge: Blackwell.

Chiang, Alpha C. *Elements of Dynamic Optimization*, 1992. New York: McGraw Hill.

Hamilton, James D. *Time Series Analysis*, 1994. Princeton: Princeton University Press.

Ljungqvist, Lars and Thomas J. Sargent *Recursive Macroeconomic Theory*, 2000. Cambridge: MIT Press.

Manuelli, Rodolfo E. and Thomas J. Sargent *Exercises in Dynamic Macroeconomics*, 1987. Cambridge: Harvard University Press.

Sargent, T.J. *Dynamic Macroeconomic Theory*, 1987b. Cambridge: Harvard University Press.

Whiteman, C.H. *Problems in Macroeconomic Theory*, 1987. New York: Academic Press.

Textbook references in the syllabus are denoted in **bold type.**

Grades: Grades will be based on one midterm, homework assignments, and the final exam.

Syllabus

I. Introduction and Review of Structural-Equation Models

   A. Introduction
       Mankiw, N.G. (1990) "A Quick Refresher Course in Macroeconomics," *Journal of Economic Literature* XXVIII: 1645-1660. Cooley, Thomas F. and Prescott, Edward E. (1995) "Economic Growth and Business Cycles", *Frontiers of Business Cycle Research*, T. Cooley, Ed., Princeton U. Press: Princeton [Section 1]

   B. Introduction to Stylized Facts
       Blanchard and Fischer (1989), Chapter 1.

   C. Review of Structural-Equation Models
       Sargent (1987a), Chapters I-IV. **Whiteman (1987)** contains problem solutions.

   D. Introduction to Production Functions

II. Nonstochastic Dynamics: Tools and Selected Examples

   A. Neoclassical Growth Models
       Romer (2005), Chapter 1; Solow, R. (1956) "A Contribution to the Theory of Economic Growth," *Quarterly Journal of Economics* LXX: 65-94.

   B.   Background Tools: Difference Equations, Linear Systems, Linearization.
       Azariadis (1993), Chapters 1, 2, 4, and 6.

   C. Optimization and Economic Growth
       Blanchard and Fischer (1989), Chapter 2.1, and Romer (2005), Chapter 2A; Cass, David (1965) "Optimum Growth in an Aggregative Model of Capital Accumulation," *Review of Economic Studies* 91:233-240; Koopmans, T.C. (1965), "On the Concept of Optimal Economic Growth," *The Economic Approach to Development and Planning"*, Amsterdam: North-Holland; Ramsey, F.P. (1928), "A Mathematical Theory of Saving", *Economic Journal* 38:543-559.

   D. The Maximum Principle and Dynamic Programming
       Blanchard and Fischer (1989), Chapter 2, Section 1; **Sargent (1987b), Chapter 1**; **Chaing (1992)**, **Chapters 2, 7, 8**; Stokey, N.L. and Lucas, R.E. Jr. (1989) *Recursive Methods in Economic Dynamics*. Cambridge: Harvard U. Press, Chapters 3-6.

   E. Endogenous Growth
       Romer, Paul M. (1994), "The Origins of Endogenous Growth," *Journal of Economic Perspectives* 8:3-22. Rebelo, S. (1991), "Long Run Policy Analysis and Long Run Growth," *Journal of Political Economy* 99:500-521.

F. Poverty Traps

Banerji, S. and Gupta, M.R. (1997), "The Efficiency Wage Given Long-Run Employment and Concave Labor Constraint," *Journal of Development Economics* 53:185-195.

G. Introducing Market Distortions in Dynamic Programming Problems

Romer (2005), Chapter 3.4, 3.5; Romer, P.M. (1986), "Increasing Returns and Long-Run Growth," *Journal of Political Economy* 94:1002-1037; Stokey, N.L. and Lucas, R.E. Jr. (1989) *Recursive Methods in Economic Dynamics*. Cambridge: Harvard University Press, Chapters 2, 15 - 18.

H. Labor-Leisure Decisions in Optimal Growth Models

Romer (2005), Chapter 4. Kydland, F. and Prescott, E. (1982) "Time to Build and Aggregate Fluctuations," *Econometrica* 50:1345-1371. Cooley, Thomas F. and Prescott, Edward E. (1995) "Economic Growth and Business Cycles", *Frontiers of Business Cycle Research*, T. Cooley, Ed., Princeton U. Press: Princeton [Sections 2-8]

I. Time Inconsistency

Sargent (1987a), Chapter XV; **Blanchard and Fischer (1989), Chapter 11.4**; Kydland, F., and Prescott, E. (1977) "Rules Rather Than Discretion: The Inconsistency of Optimal Plans," *Journal of Political Economy* 85:473-491; Barro, Robert and Gordon, David (1983), "A Positive Theory of Monetary Policy in a Natural Rate Model," *Journal of Political Economy* 91:589-610.

III. Dynamic Uncertainty: Introduction with Selected Examples

A. Projection Theory

Sargent (1987a), Chapter X.

B. Difference Equations

Sargent (1987a), Chapter IX, Sections 1 - 2.

C. Stochastic Processes

Sargent (1987a), Chapter XI, Sections 1, 2, 6 (pp. 256-257), 13, 14, 15, 19, 24, 25.

D. Linear-Quadratic Dynamic Stochastic Optimization Problems: The Generic Problem and Its Solution

Sargent (1987a), Chapter IX, Sections 8 - 12; Whiteman, C. (1983) *Linear Rational Expectations Models*, Minneapolis: University of Minnesota Press, Chapter I; Stokey, N.L. and Lucas, R.E. Jr. (1989) *Recursive Methods in Economic Dynamics*. Cambridge: Harvard University Press, Chapters 7 - 9.

E. The Lucas Critique

Sargent (1987a), Chapter IX, Section 13, Chapter XIV, Section 3; **Romer (1996), Chapter 6.4;** Lucas, R.E., Jr. (1976) "Econometric Policy Evaluation: A Critique," in K. Brunner and A. Meltzer, eds., *The Phillips Curve and the Labor Market*, Vol. 1 of

Carnegie-Rochester Conferences on Public Policy, a supplementary series to the *Journal of Monetary Economics*; Sims, C. (1982) "Policy Analysis with Econometric Models," *Brookings Papers on Economic Activity I*: 107-164, and "Are Forecasting Models Usable for Policy Analysis?" Federal Reserve Bank of Minneapolis *Quarterly Review* 10:2-16.

F. Consumption and Asset Prices

Sargent (1987a), Chapter XII; **Sargent (1987b), Ch. 3**; **Blanchard and Fischer (1989), Ch. 6**; Lucas, R.E. Jr. (1978) "Asset Prices in an Exchange Economy," *Econometrica* 46:1426-1445.

G. Competitive Equilibria in Rational Expectations Problems

Sargent (1987a), Chapter XIV; Stokey, N.L. and Lucas, R.E. Jr. (1989) *Recursive Methods in Economic Dynamics*. Cambridge: Harvard University Press, Chapter 2.3.

H. Empirical Work With Rational Expectations Models

Campbell, J.Y. and Shiller, R.J. (1987), "Cointegration and Tests of Present Value Models", *Journal of Political Economy* 95:1062-1088.

IV. Additional Topics (Good sources of practice problems, additional background information for topics listed above, and additional topics not covered above.)

IVi. More Linear-Quadratic Dynamic Stochastic Optimization Problems

A. The Phillips Curve

Sargent (1987a), Chapter XVI; **Romer (1996), Chapter 6;** Lucas, R.E., Jr. (1973) "Some International Evidence on Output-Inflation Tradeoffs," *American Economic Review* 63:326-334.

B. "Optimal" (1970's) Policy and Observational Equivalence

Sargent (1987a), Chapter XVII; Blanchard and Fischer (1989) Ch. 11; Sargent, T. (1976) "Observational Equivalence of Natural and Unnatural Rate Theories of Macroeconomics," *Journal of Political Economy* 84.

C. Labor Demand

Sargent (1987a), Chapter XVIII, Section 3; Sargent, T. (1978) "Estimation of Dynamic Labor Demand Schedules under Rational Expectations," *Journal of Political Economy* 86.

D. Labor Supply

Sargent (1987a), Chapter XVIII, Section 2; **Blanchard and Fischer (1989) Ch. 9**; Kennan, J. (1988) "An Econometric Analysis of Fluctuations in Aggregate Labor Supply and Demand," *Econometrica* 56:317-333.

E. Investment

Sargent (1987a), Chapter XIV; Blanchard and Fischer (1989), Ch. 6; **Romer (1996), Chapter 8;** Lucas, R.E., Jr. and Prescott, E. (1971) "Investment Under Uncertainty,"

Econometrica 39:659-681.

F. Consumption and Asset Prices

Sargent (1987a), Chapter XII; Sargent (1987b), Ch. 3; Blanchard and Fischer (1989), Ch. 10.1; Romer (1996), Chapter 7; Lucas, R.E. Jr. (1978) "Asset Prices in an Exchange Economy," *Econometrica* 46:1426-1445; Hall, R. (1978) "Stochastic Implications of the Life-Cycle-Permanent Income Hypothesis: Theory and Evidence," *Journal of Political Economy* 86; Flavin, M. (1981) "The Adjustment of Consumption to Changing Expectations About Future Incomes," *Journal of Political Economy* 89:974-1009.

G. Money Demand

Blanchard and Fischer (1989), Ch. 10.2; Sargent, T. (1977) "The Demand for Money During Hyperinflations under Rational Expectations," *International Economic Review* 18.

IVii. Business Cycles and Policy Design Problems

A. Business Cycles

Sargent (1987a), Chapter XI, Section 11; Blanchard and Fischer (1989), Ch. 7; **Romer (1996), Chapter 4;** Kydland, F. and Prescott, E. (1982) "Time to Build and Aggregate Fluctuations," *Econometrica* 50:1345-1371; Long, J. and Plosser, C. (1983) "Real Business Cycles," *Journal of Political Economy* 91:39-69; Prescott, E. (1986) "Theory Ahead of Business Cycle Measurement," Federal Reserve Bank of Minneapolis *Quarterly Review* 10:9-22.

B. Government Debt

Sargent (1987a) I, Chapter XIII; Sargent (1987b), Chapter 8; Barro, R. (1979) "On the Determination of the Public Debt," *Journal of Political Economy* 87:940-971.

C. Time Inconsistency

Sargent (1987a), Chapter XV; Blanchard and Fischer (1989), Ch. 11; Kydland, F., and Prescott, E. (1977) "Rules Rather Than Discretion: The Inconsistency of Optimal Plans," *Journal of Political Economy* 85:473-491; Barro, R. and Gordon, D. (1983) "Rules, Discretion, and Reputation in a Model of Monetary Policy," *Journal of Monetary Economics* 12:101-121; Barro, R. and Gordon, D. (1983) "A Positive Theory of Monetary Policy in a Natural Rate Model," *Journal of Political Economy* 91:589-610; Sargent, T. (1984) "Autoregressions, Expectations, and Advice," *American Economic Review* 74:408-415; Whiteman, C. (1986) "Analytical Policy Design under Rational Expectations," *Econometrica* 54:1387-1406.

IViii. Intertemporal Models with Money

A. Background: Overlapping Generations Models

Blanchard and Fischer (1989), Chapter 3; **Romer (2005), Chapter 2.8-2.12;** Diamond, P.T. (1965) "National Debt in a Neoclassical Growth Model," *American Economic Review*

55:1126-1150.

B. OLG Models with Money
Blanchard and Fischer (1989), Ch. 3.1, Ch. 4; Sargent (1987b), Chapter 7; Wallace, N. (1978) "The Overlapping Generations Model of Fiat Money," in J. Karekan and N. Wallace (eds.) *Models of Monetary Economies*, Minneapolis: Federal Reserve Bank of Minneapolis.

IViv. Endogenous Growth Models

A. Background: The Convergence Controversy

Baumol, W.J. (1986), "Productivity Growth, Convergence, and Welfare: What the Long-Run Data Show," *American Economic Review* 76:1072-1085; DeLong, J.B. (1988), "Productivity Growth, Convergence and Welfare: Comment," *American Economic Review* 78:1138-1154; Barro, R.J. and Sala i Martin, X. (1992), "Convergence," *Journal of Political Economy* 100:223-251.

B. Endogenous Growth Models
Romer (2005), Chapter 3; Romer, P.M. (1986), "Increasing Returns and Long-Run Growth," *Journal of Political Economy* 94:1002-1037; Grossman, G. and Helpman, E. (1989), "Product Development and International Trade," *Journal of Political Economy* 97:1261-1283; Grossman, G. and Helpman, E. (1991) *Innovation and Growth in the Global Economy*. Cambridge: MIT Press; Rebelo, S. (1991), "Long Run Policy Analysis and Long Run Growth," *Journal of Political Economy* 99:500-521; Young, A. (1991), "Learning by Doing and the Dynamic Effects of International Trade," *Quarterly Journal of Economics* 106:369-406; Lucas, R.E., Jr. (1993), "Making a Miracle," *Econometrica* 61:251-272; Barro, Robert J. and Sala-i-Martin, X. (1995) *Economic Growth*. New York: McGraw Hill.

IVv. More Stylized Facts in Macroeconomics

A. Background: Time Series Modelling
Hamilton, J.D. (1993), *Time Series Analysis* **Princeton: Princeton U. Press;** Box, G.E.P., and Jenkins, G.M. (1976) *Time Series Analysis: Forecasting and Control* (San Francisco: Holden Day).

B. Stylized Facts
Blanchard and Fischer, Ch. 1; Sargent, T.J. (1981) "Interpreting Economic Time Series," *Journal of Political Economy* 89:213-248; Kydland, F.E. and Prescott, E.C. (1990), "Business Cycles: Real Facts and a Monetary Myth," *Federal Reserve Bank of Minneapolis Quarterly Review*, Spring:3-18; Backus, D.K., Kehoe, P.J. and Kydland, F.E. (1995), "International Business Cycles: Theory and Evidence", in *Frontiers of Business Cycle Research*, T.F. Cooley, ed. Princeton: Princeton U. Press; Kydland, F.E. (1995), "Business Cycles and Aggregate Labor Market Fluctuations", in *Frontiers of Business Cycle Research*, T.F. Cooley, ed. Princeton: Princeton U. Press.