

ECON 810: Advanced Macroeconomic Theory

Professor: Noah Williams

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Office hours by appointment.

Course Schedule:

All course documents and communication will also be on the class web page:

<http://www.ssc.wisc.edu/~nwilliam/Econ810>

Requirements for this portion of the class include attendance at the lectures, completion of problem sets, a referee report and presentation, and a course paper.

The paper: You are expected to make substantial progress on a research project in macroeconomics, and complete a progress report/paper. The research project might lead to a paper satisfying the field paper requirement. The progress report must describe original research, rather than merely surveying the literature. This can be a continuation of the project you began previously, or something new. An interim progress report is due on **April 8**. The paper itself will be due during final exam week. Meeting the deadline is an important part of this exercise, so there will be no extensions.

Referee report: Evaluating others' work is an important part of the profession and the research process, so for this class you are required to write a referee report evaluating a paper from the literature. This consists of a summary of the paper, a critical evaluation, and suggestions for changes or extensions. More detail on this will be provided later in the semester. The report will be due on **May 1**. In conjunction with the report, you should prepare a discussion presentation of approximately 20 minutes, as if you were asked to discuss the paper at a conference. Discussions will be scheduled later in the class.

Reading List

Subject to change. More critical readings are marked with an asterisk (*).

1. Issues in Monetary Policy

1. The Basic New Keynesian model

*Walsh, C. (2003) *Monetary Theory and Policy*. MIT Press, Cambridge. 2nd Edition Chapter 5.4, and Chapter 11.

Woodford, M. (2003), *Interest and Prices*, Chapter 3.1-3.2, 4.1

*Clarida, R., J. Gali, and M. Gertler (1999) “The Science of Monetary Policy: A New Keynesian Perspective,” *Journal of Economic Literature*, 38: 1661-1707.

2. Liquidity Traps and the Zero Lower Bound

*Walsh, C. (2003) *Monetary Theory and Policy*. MIT Press, Cambridge. 2nd Edition Chapter 10.2

Benhabib, J., S. Schmitt-Grohe, and M. Uribe (2001) “The Perils of Taylor Rules,” *Journal of Economic Theory* 96: 40-69.

*Eggertsson, G., and M. Woodford (2003) “The Zero Bound on Interest Rates and Optimal Monetary Policy,” *Brookings Papers on Economic Activity* 34: 139–235.

Christiano, L., M. Eichenbaum, and S. Rebelo (2011) “When Is the Government Spending Multiplier Large?” *Journal of Political Economy* 119: 78–121.

3. Larger Scale (Pre-Crisis) Estimated Models and Their Implications

Christiano, L., M. Eichenbaum, and C. Evans (2005) “Nominal Rigidities and the Dynamic Effects of a Shock to Monetary Policy,” *Journal of Political Economy* 113: 1–45.

*Smets, F. and R. Wouters (2003) “An Estimated Dynamic Stochastic General Equilibrium Model of the Euro Area,” *Journal of the European Economic Association* 1: 1123-1175.

Smets, F. and R. Wouters (2007) “Shocks and Frictions in US Business Cycles: A Bayesian DSGE Approach.” *American Economic Review* 97: 586–606.

*Levin, A., A. Onatski, J. Williams, and N. Williams (2006) “Monetary Policy Under Uncertainty in Micro-Founded Macroeconometric Models,” in *NBER Macroeconomics Annual 2005*, M. Gertler and K. Rogoff, eds. MIT Press, Cambridge, pp. 229-287.

4. Financial Frictions

*Bernanke, B., M. Gertler, and S. Gilchrist (1999), “The Financial Accelerator in a Quantitative Business Cycle Framework,” in *The Handbook of Macroeconomics*, Volume 1C.

Kiyotaki, N. and J. Moore (1997), “Credit Cycles,” *Journal of Political Economy*, 105: 211-248.

*Gertler, M. and N. Kiyotaki (2011) “Financial Intermediation and Credit Policy in Business Cycle Analysis”, in *Handbook of Monetary Economics*, B. Friedman and M. Woodford eds.

Christiano, L., R. Motto, and M. Rostagno (2003) “The Great Depression and the Friedman-Schwartz Hypothesis.” *Journal of Money, Credit and Banking*, 35: 1119–97.

Christiano, L., M. Eichenbaum, and M. Trabandt (2015) “Understanding the Great Recession,” *American Economic Journal: Macroeconomics*, 7: 110–167.

2. Dynamic Contracting and Economic Policy

4: Limited commitment problems.

*Ljungqvist, Lars and Thomas J. Sargent. (2004) *Recursive Macroeconomic Theory*. MIT Press, Cambridge. 2nd Edition, Chapter 20.

Kocherlakota, Narayana (1996) “Implications of Efficient Risk Sharing without Commitment,” *Review of Economic Studies*, 63: 595-609.

*Kehoe, Timothy J. and David K. Levine (2001) “Liquidity Constrained Markets versus Debt Constrained Markets,” *Econometrica*, 69: 575-598.

Alvarez, Fernando and Urban Jermann (2000) “Efficiency, Equilibrium, and Asset Pricing with the Risk of Default,” *Econometrica*, 68: 775-798.

5: Repeated moral hazard and hidden information problems.

*Ljungqvist, Lars and Thomas J. Sargent. (2004) *Recursive Macroeconomic Theory*. MIT Press, Cambridge. 2nd Edition, Chapter 19.

Bolton and Dewatripont (2005) *Contract Theory*, MIT Press. Chapters 9, 10.1-10.2

*Thomas, J. and T. Worrall (1990) “Income Fluctuations and Asymmetric Information: An Example of a Repeated Principal-Agent Problem,” *Journal of Economic Theory*, 51: 367-390.

Atkeson, Andrew (1991) “International Lending with Moral Hazard and Risk of Repudiation,” *Econometrica*, 59: 1069-1089.

Atkeson, Andrew and Robert E. Lucas (1992) “On Efficient Distribution with Private Information,” *Review of Economic Studies*, 59: 427-453.

Cole, Harold L. and Narayana Kocherlakota (2001) “Efficient Allocations with Hidden Income and Hidden Storage,” *Review of Economic Studies*, 68: 523-542

6: Optimal unemployment insurance

*Ljungqvist, Lars and Thomas J. Sargent. (2004) *Recursive Macroeconomic Theory*. MIT Press, Cambridge. 2nd Edition, Chapter 21.

*Hopenhayn, Hugo A. and Juan Pablo Nicolini (1997) “Optimal Unemployment Insurance,” *Journal of Political Economy*, 105: 412-438.

Werning, Ivan (2002) “Optimal Unemployment Insurance with Unobservable Saving”, working paper, MIT.

Kocherlakota, Narayana (2004) “Figuring Out the Impact of Hidden Savings on Optimal Unemployment Insurance,” *Review of Economic Dynamics*, 7: 541-554.

Golosov, M. and A. Tsyvinski (2006) “Designing Optimal Disability Insurance: A Case for Asset Testing,” *Journal of Political Economy*, 114: 257-279.

3. Continuous Time Stochastic Processes and Stochastic Control

7: Basics of continuous time stochastics

*Bjork, T. (2009) *Continuous Time Finance*, Chapters 4-5, 10-12.

Yong, X. Y. and J. Zhou (1999) *Stochastic Controls*, Springer. Chapter 1.

*Fleming and Rishel (1975) *Deterministic and Stochastic Optimal Control*, Springer. Chapter V.

8: Basics of stochastic control

*Bjork, T. (2009) *Continuous Time Finance*, Chapters 19-20.

Yong, X. Y. and J. Zhou (1999) *Stochastic Controls*, Springer, Chapters 3-4.

*Fleming and Rishel (1975) *Deterministic and Stochastic Optimal Control*, Springer, Chapter VI.

Classic applications: Merton (1971), Bismut (1975)

4. Continuous Time Agency Models and Applications

9: Basic continuous time agency models

Holmstrom, B. and P. Milgrom (1987) “Aggregation and Linearity in the Provision of Intertemporal Incentives”, *Econometrica*, 55: 303-328.

Schattler, H. and J. Sung (1993) “The First-Order Approach to the Continuous-Time Principal-Agent Problem with Exponential Utility”, *Journal of Economic Theory*, 61: 331-371.

*Sannikov, Y. (2008) “A Continuous-Time Version of the Principal-Agent Problem,” *Review of Economic Studies*, 75: 957-984.

*Williams, N. (2015) “A Solvable Dynamic Principal Agent Model,” *Journal of Economic Theory*, 159: 989-1015.

10: Private information and persistence

DeMarzo, P. M. and Y. Sannikov (2006) “Optimal Security Design and Dynamic Capital Structure in a Continuous-Time Agency Model,” *Journal of Finance* 61: 2681-2724.

*Williams, N. (2011) “Persistent Private Information,” *Econometrica*, 79: 1233-1274.

Zhang, Y. (2009) “Dynamic Contracting with Persistent Shocks”. *Journal of Economic Theory*, 144: 635-675.

11: Recent applications

Kaplan, Moll, Violante (2018) “Monetary Policy According to HANK,” *American Economic Review*, 108: 697-743.

He and Krishnamurthy (2013) “Intermediary Asset Pricing,” *American Economic Review*, 103: 732-770.

Brunnermeier and Sannikov (2014) “A Macroeconomic Model with a Financial Sector,” *American Economic Review*, 104: 379–421.

*Li, Rui and Noah Williams (2019) “Optimal Contracts with Hidden Risk,” Working paper.

He, Wei, Yu, Gao (2017) “Optimal Long-Term Contracting with Learning,” *Review of Financial Studies*, 30, 2006-2065.

Prat and Jovanovic (2014) “Dynamic Contracts when Agent’s Quality is Unknown,” *Theoretical Economics*, 9:865–914.

DeMarzo, P. M. and Y. Sannikov. (2017) “Learning, Termination and Payout Policy in Dynamic Incentive Contracts,” *Review of Economic Studies*, 84:182–236.