EC541: Monetary Theory & Policy

RGK Home

Main	Class preparation	Lab sessions	Teaching Assistant
Paper topics	News links	Office hours and email	Electronics policies

Fall 2012

This class is designed so that it can be taken in two different ways by **students in the masters programs**. First, a student attending just the **lectures** can gain an overview of issues in monetary theory and policy. Second, a student attending both the lectures and the weekly **lab sessions** can obtain a more detailed understanding of how modern macroeconomic models are constructed and used. These lab sessions are optional, but most students find that the sessions substantially advance their understanding of the lecture material.

Students are likely to find that there is a higher benefit from this class if they have previously taken MA macroeconomics (**EC 502**) or are taking it simultaneously.

Students in their third semester of the MA program that have previously taken **EC 502** optionally may take this class on a **research basis** (all such students must get written consent of the instructor prior to October 1). These students will attend all sessions of the class as well as taking examinations and quizzes. However, as discussed further below, their grade will be partly based on writing and presenting a research paper on a macroeconomic topic using the tools developed in their macro classes and in the lab sessions. The topics of these papers will be developed in consultation with the instructor. *Research papers must be written in teams of two students.* The two authors must jointly prepare the presentation of the paper.

Enrollment is limited to 30 students, with priority given first to 3rd semester MA students and then to other students in the MA or BA/MA programs.

The textbook, by Jordi Gali, is used for about 1/3 of the lectures in this class and is available in the bookstore. Other textbooks related to the topics of this class are on reserve in the library.

Readings that are required are marked with a "*". Other articles are provided so that the interested student may further examine the lecture topics. Comments about the relevance of each textbook or reading are provided below.

Class policies: Students are expected to come to class having carefully read the assigned readings and being prepared to discuss key ideas. There is to be no use of electronic devices in the classroom (cellphones, recording devices, computers, etc.).

Study questions: There are weekly study problems to aid the student in learning theoretical macroeconomics material used in the lectures. Some portion of this will be "self-guided learning" that duplicates material in the MA macroeconomics course. These problems are not

graded, but are useful preparation for the lectures and examinations. Answers will not be provided to most of the study questions.

Examinations and evaluation: There will be a total of 100 points that can be earned for the class. There will be 30 points on the midterm, 40 points on the final examination, and 20 points on four short quizzes (20 minutes each) that will be randomly given at the start of classes on the required readings and the prior two lectures. Examinations will be open book, in that students may take use any materials that they may choose to bring to class (but no electronic devices). Each examination will be designed to be completed within 1.5 hours, but students may have the full 3 hour class period for the examination. Quizzes will not be open book.

Students taking the class on a research basis will be graded 50% on the quizzes and examinations discussed above, 40% on the paper, and 10% on a paper presentation. The research paper and presentation materials will be due **Thursday November 29** and the presentations will be held on Thursday December 6 (evening session) and Friday December 7 (normal class time).

All regular classes and both examinations will be held in SSW 315, the Economics Department Seminar room. The standard class time is Friday 9 am – 12 pm. Some classes will be held on Mondays 7 pm – 10 pm (room to be determined).

Students in this class are encouraged to work cooperatively, but within the rules for behavior in the GRS Academic Conduct Code. Please review the code and ask me if you have specific questions about its application to our class.

BOOKS

Textbook: Galí, Jordi, **Monetary Policy, Inflation, and the Business Cycle: An Introduction to the New Keynesian Framework**, Princeton University Press, 2008. A short, clear introduction to some issues in monetary economics, from a New Keynesian perspective. Sometimes described as "Woodford lite" because it deals with themes in Michael Woodford's Interest and Prices: Foundations of a Theory of Monetary Policy, Princeton University Press, 2003 (800 pages).

Other text resources for interested students (on reserve in Mugar Library)

Macroeconomics*:* Barro, Robert J., **Macroeconomics: A Modern Approach**, Thompson/Southwestern, 2008 (5th edition). There is no better book to learn to think about macroeconomics in a modern way. It is probably better suited to undergraduates at Harvard than at many institutions, but it is a superb combination of theory and empiricism written by a potential Nobel Laureate. Written in 1984, this book influenced many macroeconomists substantially. There are many more recent treatments that may be superficially easier to learn from, but none provides the same depth of understanding. Keynesian macroeconomists may be unhappy that there is short shrift given to nominal rigidities (chapters 15 and 16 only). But if you are an MA or BA/MA student, you should understand macroeconomics on this level.

Advanced macroeconomics: Sargent, Thomas J., **Dynamic macroeconomic theory**" and the accompanying Excercises in dynamic macroeconomic theory by Rudolfo Manuelli, both 1987 publications of Harvard University Press. Modern macroeconomic analysis involves explicit consideration of economic uncertainty and this text-plus-exercise pair is an excellent place to learn the core ideas.

Monetary Economics*:* McCallum, Bennett T., **Monetary Economics: Theory and Policy**, 1989. An clear and careful presentation of core ideas in modern monetary economics by a leader in the field.

Monetary theory and policy: Walsh, Carl E., **Monetary Theory and Policy**, 2010, 3rd edition. A comprehensive treatment of issues in modern monetary economics by a leader in the field.

CONTEXT

Many central banks have "DSGE" models which they use for forecasting and policy evaluation, as one ingredient to their policy decisions. For example, the ECB has a series of Euro area models that derive from work by Frank Smets (of the ECB) and Raf Wouters (of the National Bank of Belgium). See http://www.ecb.int/home/html/researcher_swm.en.html

Smets and Wouters also developed a version of their model for the US: "Shocks and frictions in US business cycles: a Bayesian DSGE approach", available as a February 2007 from the ECB and published in t**he** American Economic Review, June 2007; 97(3): 586-606. See http://www.ecb.int/pub/pdf/scpwps/ecbwp722.pdf

You should download and print the Smets-Wouters US paper.

The class is aimed at helping the student to understand the key components of such models, as well as the context in which they were developed.

Economists disagree about whether model-building along these lines is useful. An example is Krugman, September 2009, "How did Economists Get it So Wrong?". Krugman 2009

COURSE CALENDAR

as of September 6 2012

Mondays	**Other**	**Fridays**
		09-07 (Lecture 1)
09-10 (Lab 1)		09-14 (Lecture 2)
09-17 (Lab 2)		09-21 (Lecture 3)
09-24 (Lecture 4)*		09-28 (TA HW + Q&A)
10-01 (Lab 3)		10-05 (Lecture 5)
10-08 (Columbus Day	Tuesday 10-09 (Lab 4)	10-12 (Lecture 6)

Holiday)		
10-15 (Exam Review)*		10-19 (Exam)
10-22 (Lab 5)		10-26 (Lecture 7)
10-29 (Lecture 8)*		11-02 (No session)
11-05 (Lab 6)		11-09 (Lecture 9)
11-12 (Lecture 10)*		11-16 (Lecture 11)
11-19 (Lab 7)		11-23 (Thanksgiving Break)
11-26 (Lab 8)		11-30 (Lecture 12)
12-03 (Exam)*	Thursday 12-06 (Presentations)	12-07 (Presentations)

All lab sessions are in CAS 327 from 6:30-8:30

All Friday lectures and other sessions are held in SSW 315

All Monday sessions marked with a * are held in SSW 315 from 7-10 pm

The location of the Thursday 12-06 session is not yet determined.

LECTURE TOPICS

1. Money, Inflation, and Expectations (Friday, September 7)

Lecture outline: EC541L1Fall2012

Episodes:

* Cagan, Phillip. "The Monetary Dynamics of Hyperinflation". In Friedman, Milton (ed.). Studies in the Quantity Theory of Money. Chicago: University of Chicago Press, 1956. *An exploration of the links between money, inflation and expectations in interwar European economies experiencing hyperinflation*. Cagan particularly pages 25-57 and 86-91.

Cross country and time series evidence:

* Lucas, R.E., Jr., 1980, "Two Illustrations of the Quantity Theory of Money", American Economic Review 70, pp. 1005-14. *An exploration of the links between money, inflation and interest rates in the international cross section and US time series* Lucas2illustrations particularly 1005-6 and 1010-1013.

Background readings

Bordo, Michael D., "Equation of exchange, " The New Palgrave Dictionary of Economics, 2nd edition, 2008

<http://www.dictionaryofeconomics.com.ezproxy.bu.edu/article?id=pde2008_E000102>
doi:10.1057/9780230226203.0495

Friedman, Milton., "Quantity theory of money," The New Palgrave Dictionary of Economics, 2nd edition, 2008.
<http://www.dictionaryofeconomics.com.ezproxy.bu.edu/article?id=pde2008_Q000006>
doi:10.1057/9780230226203.1374

A more recent (but pre-crisis) analysis of the United Kingdom: Benati on UK monetary regimes

Technical material for self-guided study: The student should be familiar with some aspects linear difference equations on the level of EC502 (a brief review of key ideas is provided by the following document difeq)

Students should build a list of key concepts from course lectures so as to efficiently learn the material, to study for quizzes, and to study for exams. Lecture 1 (Key concept list)

2. A Classical Macroeconomic Model (Friday, September 14)

Lecture outline EC541L2Fall2012

Note that the lecture outline does not cover the Hall paper, but the lecture will.

* Gali, Chapter 2

* Robert E. Hall (1978), 'Stochastic implications of the life cycle-permanent income hypothesis'. Journal of Political Economy 86 (6), pp. 971-87. *The main implication of optimizing household behavior used in Gali's classical macroeconomic model is the intertemporal Euler equation for consumption. Hall's investigation of this equation's implications for the dynamics of consumption has had a major impact on macroeconomists and led to many other investigations of consumption as well as applications of his approach to other areas of applied economics.* hall

Background reading:

Barro, Robert J., Macroeconomics, chapters 1-14. *At the core of every macroeconomist's training and at the core of every New Keynesian model, there is real theory as outlined in these chapters. There may be issues suppressed by using a representative agent, as Barro does, but there are also basic elements of reality that are stressed in this approach.*

Macroeconomic models (such as that in Gali's chapter 2) are built on microeconomic foundations. It is useful to have some related microeconomic material for self-guided study:

(A) Micro foundations (consumption) and problem answers Micro foundations (consumption) wans

(B) Micro foundations (labor supply) and problem answers Micro foundations (labor supply) wans

In MA macroeconomics, you learned the permanent income model of consumption under certainty. It is useful to review these ideas in the context of a formal intertemporal optimization framework, with asset accumulation.

(C) Wealth accumulation and present value budget constraints

Wealth difference equation and pdv budget constraint

Wealth difference equation and pdv budget constraint wans

(D) Optimal consumption over time and the Life Cycle Permanent Income Hypothesis

Optimal consumption over time and the LCPIH

Optimal consumption over time and the LCPIH wans

3. The Basic New Keynesian Model (Friday, September 21)

Gali chapter 3 outline ch3 slides nov 2010

Gali chapter 3 figures Gali Chapter 3 Figures

* Gali, Chapter 3

* Gali, Jordi and Mark Gertler, "Inflation Dynamics: A structural econometric analysis ", Journal of Monetary Economics 44 (1999) 195-222. *An influential empirical study of "the New Keynesian Phillips curve" which illustrates two strategies used to evaluate single equations under a rational expectations approach.* GGjme1999

Goodfriend, Marvin S. and Robert G. King, "The New Neoclassical Synthesis and the Role of Monetary Policy," (with Marvin S. Goodfriend), National Bureau of Economic Research Macroeconomics Annual, 1997, 231-283 with comments by Ellen McGrattan and Olivier Blanchard. *An exposition of the motivations for constructing modern dynamic macroeconomic models with microfoundations and sticky prices, in terms of monetary policy. The neoclassical core — along the lines described by Barro and articulated in real business cycle analysis — is stressed.* GKnberMA97

King, Robert G. and Alexander Wolman, "Inflation Targeting in a St. Louis Model of the 21st Century," Federal Reserve Bank of St. Louis Review, vol. 78, No. 3 (May/June 1996): 83-107 with comments by Julio Rotemberg and Edward Prescott. *An early "New Keynesian" model with various frictions (monopolistic competition, sticky prices, shopping time money demand function, investment with adjustment costs) used to investigate the implications of inflation targeting.* KW96stlfrb

King, Robert G., "The New IS-LM Model: Language, Logic and Limits", in Federal Reserve Bank of Richmond, Economic Quarterly, 86(3): Summer 2000, 45-103. *An alternative to Gali's exposition of the NK model, designed for advanced undergraduates and first year graduate students.* king

King, Robert G. and Mark W. Watson, "Inflation and Unit Labor Cost". A recent reappraisal of the linkage between U.S. inflation and unit labor cost, with specific reference to Gali-Gertler and Smets-Wouters models. KW_Aug_2012 . Related presentation materials (GZ25 presentation)

Notes on solving a basic RE model (MuthModel)

Sample quiz from Fall 2011 (Economics 541 Q1 (Fall 2011))

4. Monetary policy design in the Basic NKM (*Monday*, September 24)

Gali chapter 4 outline ch4 slides nov 2010

* Gali, Chapter 4

Goodfriend, Marvin, and Robert G. King, "The Case For Price Stability," presented at the First ECB Central Banking Conference in Frankfurt, November 2000 and published in "Why Price Stability?," European Central Bank, Frankfurt am Main, Germany 2001, pp.53-94. (final version also available as NBER working paper 8423, August 2001). Includes comments by Jordi Gali and Guido Tabellini. *An exposition of the role of micro foundations in optimal monetary policy.* GK2000ecb

Aubhik Khan, Robert G. King, and Alexander L. Wolman, "Optimal Monetary Policy," Review of Economic Studies, 70 (4): October 2003, 825-860. *A general algorithm for calculating optimal policy under commitment, together with an exposition of the role of various frictions in influencing monetary policy. A money demand function derived from a shopping time technology is estimated for the US.* KKWrestud

Optimal monetary policy and the Nobel Prize of 2011.

Review and discussion (Friday September 28)

Meeting with Ms. Sherry Xinrui Yu to go over study problems and to discuss course material. The following study problems are roughly organized by lecture (of the most advanced part of the problem):

Lecture 1: stock price dynamics and the forward-looking solution to a first order expectational difference equation when there are discrete shifts in fundamentals. Stock prices and discrete shifts in fundamentals

Lecture 2:

Lecture 3: exchange rate dynamics and estimation of a basic RE model: Exchange Rate Dynamics

——————————————— Fall 2012 revisions to this point ———————————————

5. Monetary Policy Tradeoffs: Discretion versus Commitment (Friday, October 5)

Gali chapter 5 outline ch5 slides nov 2010

* Gali, Chapter 5

* Ireland, Peter N., "Does the time-consistency problem explain the behavior of inflation in the United States? Journal of Monetary Economics, Volume 44, Issue 2, October 1999, Pages 279-291. *A test of the hypothesis that discretion led to high US inflation in the 1970s, leading to a rejection of the view.* Ireland

King, Robert G., "Discretionary policy and multiple equilibria," Federal Reserve Bank of Richmond Economic Quarterly, Winter 2006, 1-15. *A basic example of a different problem with discretion than is stressed in most literature: such policies can lead to multiple self-confirming equilibria. A similar problem can readily arise in the standard New Keynesian model.* *DiscretionMultipleEq*

6. Monetary policy design with private sector skepticism (Friday, October 12)

King, Robert G., Yang K. Lu, and Ernesto S. Pasten, "Optimal Policy Design with a Skeptical Private Sector in the Textbook New Keynesian Model," working paper, August 2012. *A theoretical economy in which people are learning about an imperfectly credible policymaker's objectives and the policymaker is aware of this learning: a measure of reputation (long-term credibility) plays a key role as a form of policy capital.*

A related investigation is King, Robert G., Yang K. Lu and Ernesto S. Pasten, "Managing Expectations," Journal of Money, Credit and Banking, December 2008 40 (8), 1625-1666.

Exam Review Session (Monday, October 15)

Course topics and study questions (draft to be updated) Review Outline [draft 1]

First Examination (Friday, October 19)

First exam format

Student may bring up to 6 pages of notes to exam (one sided); these must be turned in with exam so make a copy for yourself. No other materials will be allowed.

There will be four types of questions.

[1] Short answer definition questions [20 points]

Examples are in quizzes

[2] Short answer analytical questions [20 points]

[3] A rational expectations solution question [20 points]

An example: the term structure of interest rates

[4] A longer interpretative question [40 points]

An example: sections A-D in last year's final exam (but note that this is far too long and detailed for an in-class exam) FinalExam

Two other examples:

Rational expectations model of the term structure Sample RE question

Rational expectations model of the exchange rate ec542sq [first question only]

6. Monetary policy in the US (*Monday*, October 22)

Poole, William, "The Making of Monetary Policy: Description and Analysis," Economic Inquiry v. 13, no. 2 (June 1975): 253-65. *A classic description of the structure and implementation of US monetary policy*.

* Taylor, John B. "Discretion versus Policy Rules in Practice." Carnegie-Rochester Conference Series on Public Policy. Amsterdam: North-Holland, 1993, 39(0), pp. 195-214. *A highly influential paper recommending a particular policy rule that many view as an approximation to US monetary policy under Greenspan.* TaylorRule

Poole, William, "How Predictable Is Fed Policy?" Federal Reserve Bank of St. Louis Review, November/December 2005, 87(6), pp. 659-68. A *discussion of the interplay between market perceptions and monetary policy* . PoolePRED

* Poole, William, "The Fed's Monetary's Policy Rule", Federal Reserve Bank of St. Louis Review, January/February 2006, 88(1), pp. 1-11. *An elaboration of Fed practice along Taylor lines, together with an advocacy of rule-like policies* PooleMPR

Levin, Andrew and John B. Taylor (2009), "Falling Behind the Curve: A Positive Analysis of Stop-Start Monetary Policies and the Great Inflation," in The Great Inflation, Michael D. Bordo and Athanasios Orphanides, (Eds.), forthcoming, University of Chicago Press. *A description of the rise in US inflation, stressing political considerations rather than imperfect commitment.*

Recent comparison of forms of the Taylor rule **BernhardMancini**

7. The Volcker Disinflation (Friday, October 26)

* Volcker, Paul A., "A Broader Role for Monetary Aggregates," Federal Reserve Bank of New York Quarterly Review, Spring 1977, 23-28. *A description of the potential role of monetary aggregates in disinflation, when Volcker was not yet chairman, and his more general highlighting of practical monetarism.* .VOLCKER77v2n1article6

* Poole, William, "Optimal choice of Monetary Instruments in a Simple Stochastic Macro Model," Quarterly Journal of Economics, 84, 2 (May 1970): 197-216. *The classic analysis of the choice of the monetary authority when there are variations in the equilibrium real interest rate (shifts in the IS function) and in the demand for money.* PooleQJE

* Goodfriend, Marvin and R.G. King, "The Incredible Volcker Disinflation", Journal of Monetary Economics, 52 (2005) 981–1015. *An account of the Volcker disinflation, drawing on FOMC minutes and on basic macroeconomic theory, stressing the role of imperfect credibility.* GKcr2005

Erceg, Christopher and Andrew Levin, 2003. "Imperfect credibility and inflation persistence", Journal of Monetary Economics 50, 915–944. *A modern macroeconomic model featuring private sector learning about a discrete shift in regime. With wage and price stickiness, as well as*

investment, the model can be used to investigate the behavior of real wages and the relative variations in output and consumption during the disinflation.

Lindsey, D., Orphanides, A., Rasche, R., 2005. The reform of October 1979: how it happened and why? Conference on Reflections on Monetary Policy 25 Years After October 1979. Federal Reserve Bank of St. Louis, Review, March/April, pp. 187–235. *An authoritative account the shift to monetary targeting from three Federal Reserve economists.*

8. Monetary policy at the zero lower bound (*Monday*, October 29)

* Economist Magazine: Survey of Japan, November 2010 EconomistSRonJAPAN(Nov 2010)

* Paul R. Krugman, "It's Baaack: Japan's Slump and the Return of the Liquidity Trap," with comments by Kathryn M. Dominquez and Kenneth Rogoff, Brookings Papers on Economic Activity, Vol. 1998, No. 2 (1998), pp. 137-205. *A highly influential analysis of Japan's fall from high growth and low inflation to low growth and a near-zero nominal interest rate*. *Krugman*

Eggertsson, Gauti B. and Michael Woodford, "The Zero Bound on Interest Rates and Optimal Monetary Policy" Brookings Papers on Economic Activity, Vol. 2003, No. 1 (2003), pp. 139-211. *An important and provocative analysis of why optimal policy may not be dramatically constrained by a liquidity trap, if the monetary authority can* commit *to future behavior*. EWbpea

* Dotsey, Michael, "Monetary Policy in a Liquidity Trap," Federal Reserve Bank of Philadelphia Business Review, Q2 2010. *A nice nontechnical summary of the arguments of the prior two papers. DOTSEYbrq2010*

Svensson, Lars O. "Escaping From A Liquidity Trap And Deflation: The Foolproof Way And Others," Journal of Economic Perspectives, 2003, v17(4,fall), 145-166. *A prominent academic (now deputy governor of the Riksbank) outlines options for escaping the liquidity trap and deflation*. PDF

Jeanne, Olivier and Lars E.O. Svensson, "Credible Commitment to Optimal Escape from a Liquidity Trap: The Role of the Balance Sheet of an Independent Central," American Economic Review, Vol. 97, No. 1 (Mar., 2007), pp. 474-490. *A reconsideration of the importance of central bank balance sheet considerations in the escape from the liquidity trap.*

Levin, Andrew, David López-Salido, Edward Nelson, and Tack Yun, " Limitations on the Effectiveness of Forward Guidance at the Zero Lower Bound, International Journal of Central Banking, March 2010, 143-189. *Four Federal Reserve economists investigate whether it is possible to create large output losses when there is optimal commitment monetary policy at the zero lower bound. They contrast commitment outcomes to those arising under discretion. PDF In a discussion of the LLNY paper, Robert King explores why there must be a departure from the*

"case for price stability" and provides a link to Federal Reserve policy choices during 2007-9, with a particularly relevant quote from a speech by Fed Vice chairman Donald Kohn. PDF

Additional topics to be added for lectures on the following Fridays: November 9, 16, 30

Research papers due (to class dropbox): Thursday, November 29

Second examination: *Monday*, December 3 (evening)

Paper presentations: *Thursday* December 6 (evening) and Friday December 7