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


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., \textit{Dynamic macroeconomic theory} and the accompanying Exercices 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.


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 \url{http://www.ecb.int/home/html/researcher_swm.en.html}


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?”. \textit{Krugman 2009}

**COURSE CALENDAR**

as of September 6 2012

<table>
<thead>
<tr>
<th>Mondays</th>
<th>Other</th>
<th>Fridays</th>
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<tbody>
<tr>
<td>09-07 (Lecture 1)</td>
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<td>09-07 (Lecture 1)</td>
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<td>09-10 (Lab 1)</td>
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<td>09-14 (Lecture 2)</td>
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<td>09-17 (Lab 2)</td>
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<td>09-21 (Lecture 3)</td>
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<td>09-24 (Lecture 4)*</td>
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<td>09-28 (TA HW + Q&amp;A)</td>
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<td>10-01 (Lab 3)</td>
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<td>10-05 (Lecture 5)</td>
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<tr>
<td>10-08 (Columbus Day)</td>
<td>Tuesday 10-09 (Lab 4)</td>
<td>10-12 (Lecture 6)</td>
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</table>
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:


Cross country and time series evidence:


Background readings

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
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


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. \( \text{KW\_Aug\_2012} \). 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 \( (\text{Monday, September 24}) \)

Gali chapter 4 outline ch4 slides nov 2010

* Gali, Chapter 4


Optimal monetary policy and the Nobel Prize of 2011.

Review and discussion \( (\text{Friday September 28}) \)

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**

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**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](https://doi.org/10.1016/S0304-3932(99)00008-2)

    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](https://www.federalreserve.gov/pubs/erq/2006/winter/)

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**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.

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]
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)


Recent comparison of forms of the Taylor rule [BernhardMancini](#)

7. The Volcker Disinflation (Friday, October 26)


* 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](#)


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


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

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


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


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