

**TOPICS IN MACROECONOMICS:
MODELING INFORMATION, LEARNING AND EXPECTATIONS**

FALL SEMESTER 2009, BARCELONA GSE

Professor: Kristoffer Nimark

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Class time and place: Tuesdays 17.00 - 19.00, Room 23.S03

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OVERVIEW

Many economic decisions depend on expectations about either inherently unobservable variables or about future realizations of a variable. Different theories of expectations formation will therefore have different implications for economic behavior. This course aims at equipping students with the tools needed to model two alternative theories to the full information rational expectations hypothesis: (i) Imperfectly informed, but model consistent, expectations and (ii) boundedly rational expectations, that is, expectations formed without complete knowledge of the structure of the economy. Both theories have delivered interesting results, ranging from positive predictions about the dynamics of aggregate time series and asset prices, to normative implications about the value of public information and the design of monetary policy. The substantive results from the literature will be discussed along with the specific techniques that were employed to derive them. The Kalman filter is an indispensable tool for modeling information and learning, and some time will initially be devoted to deriving the filter and exploring its properties. Three good text books that together cover some, but not all, of the course material are Ljungqvist and Sargent (2004), Anderson and Moore (1979) and Evans and Honkapohja (2001). Lecture notes will be provided, but reading articles will also be required.

Grades will be based on two homework assignments (2x10%) and a midterm (30%). The remaining 50% will be based on the first half of the course that is taught by Vasco Carvalho.

COURSE OUTLINE

1. Overview and some basics.

- a. Difference equations.*
- b. Solving full information rational expectations models.*
- c. The Kalman filter.*

2. Models of imperfect information.

- a. Island models.*
- b. Private and public information.*
- c. The information revealed by markets.*
- d. Endogenous information choice.*

3. Bounded rationality and learning.

- a. Modeling economic agents as econometricians.*
- b. Learning and policy.*

REFERENCES

- [1] ANDERSON, B.D.O. and J.B. MOORE, 1979, Optimal filtering, Dover Publications, New York, (2005 edition).
- [2] EVANS, G. and HONKAPOHJA, S., 2001, Learning and Expectations in Macroeconomics, Princeton University Press.
- [3] LJUNGQVIST, L. and T. SARGENT, 2004, Recursive Macroeconomic Theory, MIT press.