Instructor: Francesco Bianchi, email: francesco.bianchi@duke.edu.

Grading: The final grade will be based on a research project that requires to replicate some results from Lubik and Schorfheide (2004) (60%), problem sets (20%), and in-class students’ presentations of articles chosen in advance (20%).

Description of the Course
This course is composed of two parts. In the first half, we will cover an introduction to Bayesian Econometrics and standard methods as Metropolis, Metropolis-Hasting, Gibbs sampling, etc. We will then study how Bayesian methods have been used in the macro and macro-finance literatures to handle DSGE’s, VAR’s, Markov-switching-VAR’s, Time-Varying VAR’s, etc.


Schedule
We will try to cover as much as we can of the following topics. Realistically, the second part of the course will not be enough to cover all suggested topics. However, I am reporting them here as a guidance for those of you that are interested in macroeconometrics and applied macro-finance.

Methods:

- Introduction to Bayesian Econometrics
  Geweke (2005), chapters 2 and 3.
- Metropolis-Hasting, DSGE Models
  Lubik and Schorfheide (2004), Smets and Wouters (2007)
- Acceptance Sampling, Importance Sampling
- Gibbs sampling
- VAR
- Markov-switching VAR
- Models with drifting parameters
- Factor Augmented VAR’s
  Bernanke et al. (2005), Bianchi et al. (2009).
- Recent developments

Applications and Research Topics

- The natural real interest rate
- Unconventional monetary policy.
• The evolution of the reduced form properties of the macroeconomy: Monetary Policy and Volatility
  Lubik and Schorfheide (2004), Clarida et al. (1999), Clarida et al. (2000), Sims and Zha (2006),

• Generalizing the Taylor Principle and solution methods for DSGE Models with regime changes
  Davig and Leeper (2006), Davig and Leeper (2005), Davig and Leeper (2007), Farmer et al. (2009),

• DSGE models with regime changes
  Bianchi (2013), Bianchi and Ilut (2017), Davig and Doh (2014), Liu et al. (2011), Schorfheide (2005),

• Modeling the evolution of beliefs

• Characterizing uncertainty and expectations in presence of parameter instability.

• Monetary-Fiscal Policy Interaction
  Sims (2010).

• Zero-lower-bound
  Eggertsson and Woodford (2003), Benhabib et al. (2001, 2002), Mertens and Ravn (2014), Christiano
  et al. (2011), Bianchi and Melosi (2017), Aruoba et al. (2016), Coibion et al. (2012), ?.

• Asset Pricing
  Schorfheide et al. (2014), Bianchi et al. (2018).

• Smooth changes in structural parameters in DSGE and particle filtering

References

Aruoba, S., P. Cuba-Borda, and F. Schorfheide (2016). Macroeconomic Dynamics Near the Zero Lower
Bound: A Tale of Two Countries. NBER working paper 19248.

Barnichon, R. and C. Matthes (2014, March). Gaussian Mixture Approximations of Impulse Responses and


Economy 110(3), 535–563.


Bianchi, F. (2015). Rare Events, Financial Crises, and the Cross Section of Asset Returns. NBER working
paper 21056.


