

PhD Course: DRE 7002 Time Series Econometrics

Norwegian School of Management, Fall 2010

Course responsible

Hilde C. Bjørnland, Norwegian School of Management

Additional guest lecturers

Junior Maih, Norges Bank

Schedule

- Thursday 30 September 09:00 - 15:00 (Room C2-095) Hilde Bjørnland (6 hours)
- Friday 1 October 09:00 - 15:00 (Room A2-035) Hilde Bjørnland (6 hours)
- Monday 18 October 09:00 - 15:00 (Room A2-050) Hilde Bjørnland (6 hours)
- Tuesday 19 October 10:00 - 12:00 (C2-095) Hilde Bjørnland (2 hours)
- Thursday 28 October 09:00 - 14:00 (Room C2-095) Junior Maih (5 hours)
- Friday 29 October 09:00 - 14:00 (Room A2-050) Junior Maih (5 hours)

Compulsory reading

- Hamilton, James D. 1994. Time series analysis. Princeton, N.J. : Princeton University Press
- There will be hand-outs and other material relevant for the course and the examination

Recommended reading

- Canova, Fabio Methods for Applied Macroeconomic Research, Princeton, N.J. : Princeton University Press
- Favero, Carlo A.. 2001. Applied macroeconometrics. Oxford : Oxford University Press. Chapter 1,2,3, 6, 7 and 8
- Lütkepohl, Helmut. 1991. Introduction to multiple time series analysis. Berlin : Springer

Detailed plan – Time Series Econometrics

1. Time series analysis (Lecture notes 1)

- a) Preliminaries
- b) Identification problem in econometrics
- c) Moving average (MA) representation
- d) Autoregressive (AR) processes
- e) Covariance stationary vector process
- f) Forecasting
- g) Non-stationarity- Unit root- Persistence
- h) The Wold theorem
- i) Detrendings methods
- j) Spectral analysis - linear filters

2. VAR – specification, estimation and identification (Lecture notes 2)

- a) Theoretical properties of VARs and likelihood function
- b) Impulse response functions
- c) Forecast error variance decompositions
- d) Identification of structural VARs
 - Cholesky decomposition
 - SVAR and contemporaneous restrictions
 - Long-run restrictions

3. Sign restrictions and Bayesian VARs (Lecture notes 3)

- a) Bayesian inference
- b) Priors for VARs
- c) Sign restrictions
- d) Conclusions

4. Rational expectations models (Lecture notes 4)

- a) Potential, limitations and controversies (puzzles) in the SVAR literature
- b) Introduction to rational expectations (RE) models

5. Maximum likelihood, estimating RE models (Lecture notes 5-6)

- a) First-order approximation of nonlinear RE models
- b) Solving linear RE models
- c) State space models and the Kalman Filter
- d) Maximum Likelihood estimation of linearized DSGE models
- e) Introduction to Bayesian estimation of DSGE models
- f) Challenges to DSGE modeling