lecon2703

2024

Advanced course in economics III

5.00 credits	15.0 h	Q2

Teacher(s)	Monti Francesca ;
Language :	English
Place of the course	Louvain-la-Neuve
Learning outcomes	
Evaluation methods	For the evaluation students will prepare and present in class an extended "discussion" of a relevant paper to be chosen in agreement with the teacher of the course. The final grade is awarded based on the presentation. What does "discussion" mean exactly? Academic conferences often feature a discussant, who speaks after the presenter of a paper. They generally summarise the paper and provide in depth comments on the paper being presented, highlighting the key contributions as well as the drawbacks and issues with the paper.
Teaching methods	This is an advanced course based mostly on the papers listed below. Students are expected to engage actively in the class, read the material ahead and participate in discussions. The expectation is that the class will be taught in person, subject to the evolving situation with Covid-19.
Content	This course will focus on methods in time series econometrics designed to handle "big data." We will talk about univariate predictive regressions with many regressors, discussing various dense and sparse regularization techniques, such as principal components, ridge, lasso and others. We will discuss Bayesian inference in the context of these regressions and explore the connection between Bayesian shrinkage and regularization. The course will then cover some of the most popular multivariate econometric models for big data. We will talk about dynamic factor models, looking at different estimation techniques, including Bayesian. The course will also cover Bayesian VARs, detailing in particular how they can be used to deal with mixed-frequency and irregularly sampled data. We will discuss applications of these models and methods to nowcasting and forecasting in macroeconomics and finance. We will also touch on machine learning for macroeconomic forecasting, if time permits.
Inline resources	Slides and other relevant material will be made available via Moodle

Bibliography	The course is based on these papers and books:
	Antolin-Diaz, J., T. Drechsel and I. Petrella (2021) « Advances in Nowcasting Economic Activity : Secular Trends, Large Shocks and New Data » http://econweb.umd.edu/~drechsel/papers/advances.pdf
	Bai, Jushan, and Serena Ng. 2002. "Determining the Number of Factors in Approximate Factor Models." Econometrica 70(1): 191–21.
	Giannone, D., Banbura, M. and Reichlin, L., "Large Bayesian VARs", Journal of Applied Econometrics, 2010.
	Cimadomo, Jacopo and Giannone, Domenico and Lenza, Michele and Monti, Francesca and Sokol, Andrej, Nowcasting with Large Bayesian Vector Autoregressions (February 1, 2021). CEPR Discussion Paper No. DP15854, Available at SSRN: https://ssrn.com/abstract=3795250
	De Mol, C., D. Giannone, and L. Reichlin (2008): "Forecasting using a large number of predictors: Is Bayesian shrinkage a valid alternative to principal components?" Journal of Econometrics, 146, 318–328.
	Giannone, D., M. Lenza and G.Primiceri "Economic Predictions with Big Data: The Illusion of Sparsity, " January 2021, forthcoming, Econometrica. https://faculty.wcas.northwestern.edu/~gep575/illusion5-1-colors.pdf
	Gelman, A., J. B. Carlin, H. S. Stern, and D. B. Rubin (2004): Bayesian Data Analysis, London: Chapman and Hall.
	Geweke, J. F. (2005): Contemporary Bayesian Econometrics and Statistics, New York: Wiley.
	Leamer, E. E. (1973): "Multicollinearity: A Bayesian Interpretation," The Review of Economics and Statistics, 55, 371–380.
	Trevor Hastie, Robert Tibshirani, Jerome Friedman (2001). The Elements of Statistical Learning, Available at http://www-stat.stanford.edu/#tibs/ElemStatLearn/
	Reichlin, L., Giannone, D., Doz, C., (2012). "A Quasi Maximum Likelihood Approach for Large Approximate Dynamic Factor Models", Review of Economics and Statistics,. MIT Press, vol. 94(4), pages 1014-1024, November
	Schorfheide, Frank and Dongho Song, "Real-Time Forecasting with a Mixed-Frequency VAR, " Journal of Business and Economic Statistics, Volume 33, Issue 3, p.366-380, (2015)
	Stock, J.H. et M.H. Watson (2016), "Factor Models and Structural Vector Autoregressions in Macroeconomics" in Handbook of Macroeconomics, Vol2A, John B. Taylor and Harald Uhlig (eds), 2016, Chapter 8, pp 415-526
	Stock, James H., and Mark W. Watson (2002). "Forecasting Using Principal Components from a Large Number of Predictors." *Journal of the American Statistical Association* 97, no. 460 (2002): 1167-179. Accessed August 27, 2021. http://www.jstor.org/stable/3085839.
	Stock, J. H. and M. W. Watson (2002b): "Macroeconomic Forecasting Using Diffusion Indexes," Journal of Business and Economics Statistics, 20, 147–162.
Faculty or entity in charge	ECON

Programmes containing this learning unit (UE)				
Program title	Acronym	Credits	Prerequisite	Learning outcomes
Master [120] in Economics: Econometrics	ETRI2M	5		🔍