Instructor: Graham Elliott.

Time and Location: T, Th 12pm-1.30pm, Economics 300.

The aim of the course is to give a systematic treatment of forecasting methods and econometrics revolving around forecasts and forecasting. This reference point will allow us to examine methods that may not be familiar as well as provide a sound basis for methods employed in practice. There is no text, the best book on the subject is Granger and Newbold (1986) Forecasting Economic Time Series.

Material: We will cover as many of the following topics as feasible.

1. Basic Ideas and Loss Functions

Pesaran, M.H. and S. Skouros (2002), "Decision-Based Methods for Forecast Evaluation", p241-267 in M.P Clements and D.F. Hendry eds. A Companion to Economic Forecasting, Blackwell: Oxford.

2. General Results for Optimal Forecasts

Granger, C.W.J., 1999, "Outline of Forecast Theory Using Generalized Cost Functions," Spanish Economic Review 1, 161-173.

3. Specific results for various information sets.

Christoffersen, P.F. and F.X. Diebold, 1997, Optimal prediction under asymmetric loss. *Econometric Theory* 13, 808-817.

4. Functional form and distributional assumptions

Granger, C.W.J., 1969, "Prediction with a generalized cost function," Operations Research Quarterly, 20, 199-207.

Elliott, G. and A. Timmermann, 2002, Optimal Forecast Combinations Under General Loss Functions and Forecast Error Distributions. University of California San Diego working paper 2002-08.

Mishkin, F.S., 1981, Are Markets Forecasts Rational? American Economic Review 71, 295-306.

5. Forecasting Multiple Steps ahead

Granger, C.W.J. and T. Terasvirta (1993), Modelling Nonlinear Economic Relationships, Oxford university press: Oxford. pp130-135.

6. Density and Interval Forecasts

Tay, A.S. and K.F. Wallis, 2000, "Density Forecasting: A Survey," *Journal of Forecasting* 19, 235-254. 7. Estimation when the Forecast model is specified

James, W. and C. Stein (1961): "Estimation With Quadratic Loss" in the *Proceedings of the Fourth Berkeley Symposium on Mathematical Statistics and Probability.* Berkeley: University of California Press, pp. 361-379.

Judge, G.G. and M.E. Bock (1978): The Statistical Implications of Pre-Test and Stein-Rule Estimators in Econometrics. Amsterdam: North Holland.

8. Searching over forecast models

Kuan, C.M. and H. White, (1992) "Artificial Neural Networks: An Econometric Perspective", *Econo*metric Reviews, 13, (whole volume including comments).

Gallant, A.R. (1981) "On the Bias in Flexible Functional Forms and Essentially Unbiased Form: The Flexible Fourier Form", Journal of Econometrics, 15, 211-245.

Gourieroux, C. and A. Monfort (1995), Statistics and Econometric Models, Volume 2, Chapter 22. 9. Assessing Forecastability

West, K.D., 1996, "Asymptotic Inference about Predictive Ability," *Econometrica* 64, 1067-84. 10. Forecast Evaluation

Chong, Y.Y. and D.F. Hendry (1986), "Econometric Evaluation of Linear Macro-Economic Models", *Review of Economic Studies*, 53, 671-90.

Clark, T.E. and M.W. McCracken (2001), "Tests of equal Forecast Accuracy and Encompassing for Nested Models", *Journal of Econometrics*, 105, pp 85-110.

Diebold, F.X. and J.A. Lopez,1996, "Forecast Evaluation and Combination," in Maddala and Rao (eds) Handbook of Statistics, Springer-Verlag.

Diebold, F.X. and R. Mariano, 1995, "Comparing predictive Accuracy," Journal of Business and Economics Statistics 13, 253-65.

Inoue, A. and L. Kilian (2002), "In-Sample or Out-of-Sample Tests of Predictability: Which One should we use?", manuscript.

West, K.D. and M.W. McCracken (1998), "Regression-Based Tests of Predictive Ability", International Economic Review, 39, pp817-840.

White, H. (1997), "A reality check for Data Snooping", Econometrica, 68, 1097-1126.

11. Forecast Combination

Clemen, R.T., 1989, Combining Forecasts: A Review and Annotated Bibliography. International Journal of Forecasting 5, 559-581.

12. Evaluating interval and density forecasts

Christoffersen, P.F., 1998, "Evaluating Interval Forecasts," *International Economic Review* 39, 841-862. 13. Real-Time forecasts.

Grading: There will be a final exam worth 100%.