

# Syllabus: Forecasting in Economics

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Fall 2015

This course covers various topics on constructing and evaluating economic forecasts and applies the techniques by means of standard time-series models. It covers theory as well as real-world applications in the computer lab. The grade will be based on a take-home exercise during the semester and a final examination at the end of the semester.

Basic knowledge in statistics and econometrics is a prerequisite and knowledge in univariate time-series analysis is highly recommended. For the applied part, prior knowledge of statistics programs is an advantage, but not a prerequisite. The applications will be presented in the software MATLAB; an introduction is given at the beginning of the course.

The main reference for the course is Diebold (2006). The manuscript of this textbook can be downloaded for free from <http://www.ssc.upenn.edu/~fdiebold/Textbooks.html>, *book manuscript* or *book photocopy*.

Office hours after the lecture or by appointment. The following syllabus will be updated continuously.

**Information final exam:** The final exam is open book and will take place in the computer lab. Some questions have to be answered analytically and some by adapting a MATLAB program. You will use the computers in the lab; no personal electronic devices are allowed except a calculator. The course material (books, manuals, slides, exercises, programs) will be available electronically on the computer; you can bring your own version on a memory stick or a hardcopy as well.

**15 September: Introduction, principles of forecasting** Diebold (2006) Chapters 1 and 3.

**22 September: Statistics review and MATLAB introduction** Diebold (2006), Chapter 2. Introduction to MATLAB by Kevin Sheppard ([https://www.kevinsheppard.com/images/0/06/MATLAB\\_Introduction\\_2013.pdf](https://www.kevinsheppard.com/images/0/06/MATLAB_Introduction_2013.pdf)).

*Application: An introduction to econometrics in MATLAB*

**29 September: Building univariate time-series models for forecasting** Diebold (2006), Chapters 7, 8, 9.

*Application: Building a forecasting model for UK CPI inflation*

**6 October: Exogenous information and scenario analysis** Diebold (2006), Chapter 11.

*Application: Effects of oil price and VAT changes on UK CPI inflation*

**13 and 20 October: Reporting Forecasts** Diebold (2006), Chapter 9 and Clements (2005), Chapter 4.

*Application: Constructing a fan-chart for UK CPI inflation*

**Take-home exercise** The take-home exercise will be distributed after the lecture on 20 October and is due on **Tuesday, 3 November, 8:00 AM**. Hand in a PDF-document with your solution as well as the M-file you used to calculate the results by e-mail. Indicate clearly your names and student numbers.

**27 October: Evaluating single forecasts** Diebold (2006), Chapter 12 and Clements (2005), Chapter 2.

*Application: Evaluate the Survey of Professional Forecasters*

**3 and 10 November: Evaluating competing forecasts** Diebold (2006), Chapter 12 and Clements (2005), Chapter 2.

*Application: Does the Survey of Professional Forecasters improve simple time-series forecasts?*

**17 and 24 November: Forecast combination** Diebold (2006), Chapter 12, and Timmermann (2006) for those more interested in this topic.

*Application: Improving combination schemes for the Survey of Professional Forecasters*

**1 December: Forecasting in practice**

**8 December: Q&A session** Please send questions that should be discussed by Sunday evening, 6 December.

**15 December: Final exam**

## References

CLEMENTS, M. (2005): *Evaluating Econometric Forecasts of Economic and Financial Variables*, Palgrave Macmillan.

DIEBOLD, F. (2006): *Elements of Forecasting*, Thomson/South-Western, 4 ed.

TIMMERMANN, A. (2006): *Forecast Combinations*, Elsevier, vol. 1 of *Handbook of Economic Forecasting*, chap. 4, 135–196.