

**Forecasting Methods**  
Winter term 2022/23  
PD Dr. Ralf Stecking  
Abigail Opokua Asare, M.Sc.

**Lecture:**

Tuesday 16.15-17.45 o'clock in room A5 0-055

**Exercise:**

Thursday 12.15-13.45 o'clock in room A5 1-161

Starts: 18th October 2022, ends: 2nd February 2023

**Content of the module**

Students of this course shall be able to choose, apply, and evaluate *quantitative forecasting methods*. The course is data-oriented: students will be able to solve economic problems from the area of time series as well as from classification analysis.

The module consists of two parts: the lecture imparts knowledge about the basic theoretical principles of forecasting methods. The exercise includes case studies using actual economic data sets with appropriate software packages.

## Structure

The following parts are the content of the course *Forecasting Methods*:

- Time series components,
- Trend and seasonal adjustment procedures,
- Stationarity,
- Uni- and multivariate forecasting methods,
- Classification methods for prediction,
- Model evaluation.

## Literature

Abraham, B. and Ledolter, J. (2005): *Statistical Methods for Forecasting*, New York

Box, G.E.P and Jenkins, G.M. (1976): *Time series analysis: forecasting and control*, San Francisco

Chang, W. (2018): *R Graphics Cookbook*. O'Reilly Media, Inc. <https://r-graphics.org/>

Grolemund, G. (2014): *Hands-On Programming with R: Write Your Own Function and Simulations*. O'Reilly Media, Inc. <https://rstudio-education.github.io/hopr/>

Hamilton, J.D. (1994): *Time series analysis*, Princeton NJ

Hyndman, R.J. and Athanasopoulos, G. (2021): *Forecasting: principles and practice*, 3rd edition, OTexts: Melbourne, Australia. <https://otexts.com/fpp3/>

Makridakis, S., Wheelwright, S.C., MacGee, V.E. (1983): *Forecasting: methods and applications*, New York

Venables, W. N., and Smith, D. M. (2010): *An Introduction to R*. <https://cran.r-project.org/doc/manuals/r-release/R-intro.pdf>

Wickham, H., and Grolemund, G. (2017): *R for Data Science: Import, Tidy, Transform, Visualize, and Model Data*. O'Reilly Media, Inc. <https://r4ds.had.co.nz/>