Carl von Ossietzky
Universität
Oldenburg

Forecasting Methods

Winter term 2025/26

PD Dr. Ralf Stecking and ***Abigail Opokua Asare****, Institute of Economics*

- **Lecture time:** Tuesday 16:00-18:00 o'clock in room A5 0-055
- **Exercise:** Thursday 12:00-14:00 o'clock in room A5 1-161
- **Starts: 14th October 2025, ends: 27th January 2026**

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 is composed of two integrated parts: the lecture introduces basic theoretical principles of forecasting methods, while the exercise sessions emphasize empirical application through case studies. These are conducted with real-world economic datasets and Rstudio statistical software.

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 con-trol, San Francisco
- Hamilton, J.D. (1994): Time series analysis, Princeton NJ
- Makridakis, S., Wheelwright, S.C., MacGee, V.E. (1983): Forecasting: methods and applications, New York
- Hyndman, R.J. and Athanasopoulos, G. (2021): Forecasting: principles and pratice, 3rd edition, OTexts: Melbourne, Australia. https://otexts.com/fpp3/
- Venables, W. N., and Smith, D. M. (2010): An Introduction to R. https://cran.r-project.org/doc/manuals/r-release/R-intro.pdf
- Grolemund, G. (2014): Hands-On Programming with R: Write Your Own Function and Simulations. O'Reilly Media, Inc. https://rstudio-education.github.io/hopr/
- 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/
- Chang, W. (2018): R Graphics Cookbook. O'Reilly Media, Inc. https://r-graphics.org/