Faculty of Economics and Business, University of Belgrade, Belgrade
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FOR STUDENTS THAT DID NOT HAVE A COURSE ON ECONOMETRIC TIME SERIES ANALYSIS

INTERMEDIATE ECONOMETRICS
(Time-Series Analysis)

This part of the course is designed to introduce time series econometric tools most used in finance and to gain understanding of the characteristics of financial data. The course will emphasize the application of statistical and econometric methods to analyze real financial data by using EVIEWS 12/13 software.

Course Outline (the approximate list of topics):

Lecture 1: Modelling time series – basic concepts
Introduction. Stylized facts of economic time series. Basic concepts in time series: stationarity, white noise, autocovariance and autocorrelation function. Autocorrelation tests. Linear representation.

Lecture 2: Modelling stationary time series
Linear time series models: AR, MA and ARMA. Partial autocorrelation function. Specification, parameter estimation and adequacy testing. Examples.

Lecture 3: Modelling non-stationary time series
Unit-root nonstationary models. Unit-root testing. ARIMA models. Examples.

Lecture 4: Modelling volatility of time series
Characteristics of volatility. The ARCH and GARCH models: properties, model building and model checking. Modifications. Examples.

Literature:

Brooks, C. (2019), *Introductory Econometrics for Finance*, Cambridge University Press, 4th edition.

Mills, T.C. (2019), *Applied Time Series Analysis*, Academic Press.

Mladenović, Z. (2023), *Lecture notes.*

Tsay, R.S. (2010), *Analysis of Financial Time Series*, Wiley, 3rd edition.

Grading:

The grade depends on homework and final exam (25 points each – 50 in total).

- Homework will be given at the end of the course. When finished, the homework needs to be handed in person, so that students can answer questions directly. The homework can be done in group of two students.

- Final exam is written and contains theoretical questions.