

Time Series Analysis with R

Course duration: 18 hrs

Dates: February 22, 23 and 24

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Description: the course describes stochastic and deterministic methods for analyzing and interpreting time series. The course presents a general introduction to the concepts of stochastic processes. The time series analysis is described with the ARMA (auto regressive moving average), ARIMA (integrated autoregressive moving average) and SARIMA (seasonal autoregressive integrated moving average) models. Examples are presented with experimental data for the processes described above. The course will then present the spectral analysis of signals, mainly through the Fourier transform (both deterministic and stochastic) and SSA (singular spectrum analysis), the latter used for the separation of noise and the determination of trends.

Program:

Date and time	Topic
22 Feb., 9-12	Intro Stochastic processes
22 Feb., 14-17	ARMA processes
23 Feb., 9-12	ARIMA and SARIMA processes
24 Feb., 14-17	Examples
24 Feb., 9-12	Spectra and SSA analysis
24 Feb., 14-17	Examples

The examples will be presented in R language, and therefore the installation of the software (freeware) R Studio.