STAT5210: Time Series Analysis

Lecture: Tuesday T234

Instructor: Nan-Jung Hsu [njhsu@stat.nthu.edu.tw]

Textbook:

1. Shumway and Stoffer, Time Series Analysis and its Applications with R Examples.
   2nd edition (2006); 3rd edition (2011); 4th edition (2016) (e-Book).
   https://www.stat.pitt.edu/stoffer/tsa4/
2. Tsay, Ruey S. (2012), An Introduction to Analysis of Financial Data with R.
   https://faculty.chicagobooth.edu/ruey.tsay/teaching/introTS/
3. Tsay, Ruey S. (2014), Multivariate Time Series Analysis.

Grading: Homework (50%), Midterm (20%), Project (30%)

Course Materials: http://lms.nthu.edu.tw

TA Hours: TBA

Topics:

Time series data patterns and dependence

Stationary process and autocorrelation

Linear process, ARMA models

Estimation and best linear prediction (forecasting)

Model building and selection

Financial time series and volatility model

Multivariate time series

State-space model and Kalman filter

Frequency domain analysis: spectral density and its inference

Software:

R: http://www.r-project.org

RStudio: http://rstudio.org/