Syllabus: Time Series Analysis

Summer Semester 2011

Time and place: Lecture: Thursday, 10:15-11:45; Room A 020, Main building
                  Tutorial: Wednesday, 18:15 – 19:45; CIP III, Ludwigstr. 28 RG

The lecture starts on 6.5.2011, the tutorial on 12.5.2011 (second week!),

ECTS-Credits: 6 (2 hours of lecture and 2 hours of tutorial per week)

Office hours: Tuesday, 2-4 p.m., Schackstraße 4, room 213

Outline of lecture

1) Stationary time series models (some basic concepts)
2) ARIMA models
3) Spectral analysis
4) Some important filters in economics
5) An introduction to state space modelling and the Kalman filter
6) Some elements of multivariate time series models

Outline of tutorial

1) Lag operators and some properties of polynomials
2) Trigonometric functions and complex numbers
3) Descriptive analysis of time series
4) Model selection and estimation of ARIMA models
5) Empirical aspects of spectral analysis
6) Applications of filters

Prerequisites:

It is very useful when the students have a good knowledge of econometric methods and statistical analysis.

Target audience: M.Sc. and doctoral candidates in economics

Description of the course:

The aim of the course is to present important concepts of time series analysis (Stationarity of stochastic processes, ARIMA models, spectral analysis, state space modelling etc.). The course is a mixture of theory and practical applications of time series methods. The theoretical material (presented mainly in the lecture) focuses upon properties of stationary time series and their analysis in the time and
frequency domain. In the tutorial, problems of specification and estimation of time series are treated. We use econometric packages (EVIEWS) and the programming language GAUSS for empirical applications.

**Literature:**