



Course name Swedish: Wavelets for Time Series Analysis

Course name English: Wavelets for Time Series Analysis

Course Code: 3FNA023

ECTS credits: 5

Level Doctoral course

Expected learning outcomes

Upon finishing the course, the students will be able to:

Use and apply the wavelet methods to real data in appropriate software.

Discuss and explain the main merits and limitations of Wavelet analysis

Present empirical results based on the wavelet methods in a clear and precis way.

Course contents

The course will cover the following topics:

- an introduction to wavelet analysis
- the Discrete Wavelet Transform (DWT)
- the Maximal Overlap DWT (MODWT)
- the wavelet variance, covariance, correlation and cross correlation
- analysis of long memory processes
- wavelet-based estimation
- wavelet-based bootstrapping



Teaching methods and language

Lectures and exercises

Language of instruction: English.

Assessment methods

Grading scale

The course is examined through assignments written individually or in small groups. Seminars and oral presentations may also be used. The grades given are Pass or Failure.

Prerequisites

Accepted as doctoral student in Statistics, Economics, Finance or related areas.

Required reading

Percival, D and A. Walden

Wavelet Methods for Time Series Analysis,
Cambridge University Press, 2000.

Gencay R, F Selcuk and B. Whicher

An Introduction to Wavelets and Other Filtering Methods
in Finance and Economics, Academic Press, 2001.(optional)

Scientific articles

Course evaluation

The course is continuously evaluated through discussions with participants and adjustments are implemented directly.