



LUND UNIVERSITY
Faculty of Medicine

Approved by FUN 4 October 2018, valid from 4
October 2018

Research Programmes Board, FUN

Applied Statistics III – Time Series Analysis in Clinical and Environmental Epidemiology, METSTS01

1.5 credits

Third cycle

General information

The course presents basic statistical methods for the analysis of time series data. It is a full-time course for doctoral students but it is also open to researchers holding PhDs/lecturers if places are available.

Language of instruction

English

Aim

Time series data are increasingly used in medical research. This specialisation course (level III) in applied statistics has been designed to provide the participants with tools to plan, analyse and evaluate empirical studies based on time series data.

Learning outcomes

On completion of the course, the participant shall recognise type situations that are suited for time series analysis and be able to propose, perform and interpret statistical analyses of time series data obtained in such situations.

Course content

The course starts with an introduction to time series analysis and a description of type situations that are suitable for time series analysis. This is followed by specialised study of statistical analysis and interpretation of time series data obtained in different type situations.

The following topics are included on the course:

1. Introduction to time series analysis – definition – type situations – study design
2. Description of data
3. Classical time series analysis
4. Case-crossover methodology
5. Distributed lag Nonlinear models

Course design

The course mixes lectures with practical computer exercises. The exercises enable the participants to learn how to apply different methods for the analysis of time series data and acquire an understanding of differences between the methods. The course requires students to know how to use the statistics software R. Furthermore, they must have access to a laptop with R correctly installed.

Assessment

The assessment is based on an individual written assignment and on active participation on the course.

Grades

The grades awarded are Pass or Fail.

Admission requirements

To be admitted to the course, participants must have knowledge corresponding to the level I and II courses in statistics on the third cycle programme. Experience of using R for statistical analyses is a requirement.