

Introductory Time Series Analysis

Grundläggande tidsserieanalys
7.5 credits

Single subject and programme course

732G42

Valid from: 2018 Spring semester

Determined by	Main field of study	
Course and Programme Syllabus Board at the Faculty of Arts and Sciences	Statistics	
Date determined	Course level	Progressive specialisation
2018-04-23	First cycle	G1N
Revised by	Disciplinary domain	
	Social sciences	
Revision date	Subject group	
	Statistics	
Offered first time	Offered for the last time	
Autumn semester 2017	Autumn semester 2023	
Department	Replaced by	
Institutionen för datavetenskap	732G52	

Course offered for

- Bachelor's Programme in Statistics and Data Analysis

Intended learning outcomes

On completion of the course, the student should be able to:

- account for basic methods for the analysis of time series data
- use basic methods for the construction and use of indices
- account for how to validate time series models
- use statistical software to: fit appropriate time series models to given data sets, make inference about time series components, and compute forecasts and their statistical uncertainty
- interpret results of analyses
- assess the quality of data

Course content

Index theory:

- Fixed base index and chain index.

Time series analysis:

- Time series regression
- Decomposition
- Exponential smoothing, Holt Winters methodology
- ARIMA, SARIMA
- Forecasting

Teaching and working methods

Apart from independent studies, the teaching consists of lectures, teaching sessions, supervision, a project, review of another project, seminars, and computer exercises. Homework and independent study are a necessary complement to the course.

Examination

The course is examined individually through a written examination and through a project that is presented both in written form and orally in a discussion seminar. Detailed information about the examination can be found in the course's study guide.

If special circumstances prevail, and if it is possible with consideration of the nature of the compulsory component, the examiner may decide to replace the compulsory component with another equivalent component.

If the LiU coordinator for students with disabilities has granted a student the right to an adapted examination for a written examination in an examination hall, the student has the right to it.

If the coordinator has recommended for the student an adapted examination or alternative form of examination, the examiner may grant this if the examiner assesses that it is possible, based on consideration of the course objectives.

An examiner may also decide that an adapted examination or alternative form of examination if the examiner assessed that special circumstances prevail, and the examiner assesses that it is possible while maintaining the objectives of the course.

Students failing an exam covering either the entire course or part of the course twice are entitled to have a new examiner appointed for the reexamination.

Students who have passed an examination may not retake it in order to improve their grades.

Grades

Three-grade scale, U, G, VG

Other information

Planning and implementation of a course must take its starting point in the wording of the syllabus. The course evaluation included in each course must therefore take up the question how well the course agrees with the syllabus.

The course is carried out in such a way that both men's and women's experience and knowledge is made visible and developed.

If special circumstances prevail, the vice-chancellor may in a special decision specify the preconditions for temporary deviations from this course syllabus, and delegate the right to take such decisions.