

## Multiple Regression and Time Series Analysis

Statistik B  
8 credits

Programme course

732G71

Valid from: 2010 Autumn semester

<b>Determined by</b>	<b>Main field of study</b>	
The Quality Board at the Faculty of Arts and Sciences	Statistics	
<b>Date determined</b>	<b>Course level</b>	<b>Progressive specialisation</b>
2008-10-14	First cycle	G1F
<b>Revised by</b>	<b>Disciplinary domain</b>	
	Social sciences	
<b>Revision date</b>	<b>Subject group</b>	
	Statistics	
<b>Offered first time</b>	<b>Offered for the last time</b>	
Autumn semester 2008		
<b>Department</b>	<b>Replaced by</b>	
Institutionen för datavetenskap		

## Course offered for

- Business and Economics Programme

## Entry requirements

General entry requirements for undergraduate studies  
and

Social Studies, English, and Mathematics corresponding to the level of Swedish upper secondary education (Samhällskunskap 1b or 1a1 and 1a2, Engelska 6 and Matematik 3b/3c or Matematik C)

and

and completed Introductory Statistics, or equivalent

## Intended learning outcomes

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

- formulate, adapt, analyse and interpret models of simple and multiple linear regression and classical models of time series data
- assess adjusted regression models and select models based on different criteria
- carry out and assess forecasts from adapted models
- apply knowledge of models and methods for regression and time series analysis to solve issues in economic and business economic studies.

## Course content

The aim of the course is that the student should acquire methodology to analyse and interpret statistical models of relationship between variables and statistical models of time series data.

- Models for simple and multiple linear regression: formulation, adaptation, statistical inference for estimated parameters, forecasts for new values, non-linear and qualitative explanatory variables, residual analysis, multicollinearity, divergent observations, model selection models, exponential models and elasticity models.
- Models for time series data: time series regression, classical decomposition, exponential smoothing methods for forecasting. Analysis of data by means of statistical software.
- Project work with issues related to existing data of an economic or business economic nature.

## Teaching and working methods

The teaching takes the form of scheduled lectures, teaching sessions, computer exercises and assisted problem solving. The teaching sessions are held as supervised exercise sessions, while the computer exercises and assisted problem solving are independent work with access to supervision. The project work is carried out in groups outside of scheduled time. Furthermore, the student should exercise self-study.

## Examination

The course is examined through a written examination and written project presentations.

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.

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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.