



**LUND**  
UNIVERSITY

School of Economics and Management

## **STAE03, Statistics: Business Analytics, 7.5 credits**

*Statistik: Affärsanalys, 7,5 högskolepoäng*

First Cycle / Grundnivå

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### **Details of approval**

The syllabus was approved by The Board of the Department of Statistics on 2015-06-08 to be valid from 2015-06-08, autumn semester 2016.

### **General Information**

*Language of instruction:* English

*Main field of studies*

Statistics

*Depth of study relative to the degree requirements*

G1F, First cycle, has less than 60 credits in first-cycle course/s as entry requirements

### **Learning outcomes**

#### **Knowledge and understanding**

For a passing grade the student must

- demonstrate the ability to understand and identify the challenges in analysing massive data that are difficult to process without modern computational tools (the Big Data problem).

#### **Competence and skills**

For a passing grade the student must

- demonstrate the ability to conceptualise a data mining solution to a practical problem involving complex, big data sets focusing on economics and business oriented applications.

### **Judgement and approach**

For a passing grade the student must

- demonstrate familiarity with basic statistical techniques useful for drawing patterns from multidimensional data, which help improving decision making.

## Course content

Business Analytics refers to our ability to collect and use data to generate insights for fact-based decision-making. Every day our world is filled with new data, with every data input adding new information to the preceding ones. Google and Amazon, among many, are providing us with huge databases that record our preferences, a process made possible through the use of statistical learning. In this course we will explore challenges dealing with Big Data and learn about several statistical methods that are commonly used to investigate business-related problems.

The course is designed for students with basic knowledge of statistics, and the content of the course will be of practical nature. It covers methods for data mining and business analytics and their usage in making strategic business decisions. It will concentrate on the modelling aspects of data mining and will provide students with a set of tools for better understanding key methods of, for example, data exploration, visualisation, classification, prediction, and clustering. The course starts with data visualization and getting to know features hidden in the data. Over time we will gain familiarity with traditional regression models and hypothesis testing and practice using them with real data. This introduction to traditional approaches will then lead to the discussion of more advanced methods such as, discriminant analysis, classification and clustering methods, which are useful in finding patterns hidden in the data. During the course, we deal with various types of data such as, categorical data, time series, text data, and network data, among others. The fundamentals of building suitable models are discussed. Illustrations are carried out using the statistical package R.

Students are required to work on solving business-related projects to practice applying the methods discussed and utilizing existing software tools. Classes take three forms: lectures, tutorials and lab projects. Discussions will enable students to share and compare ideas with each other and to receive specific guidance from the instructors. Efforts will be made to help students formulate real-world problems into mathematical models so that suitable algorithms can be applied with consideration to computational constraints.

## Course design

The course is designed as a series of lectures, tutorials, and lab sessions with reports.

## Assessment

The examination consists of written assignments and a computer based exam.

*Subcourses that are part of this course can be found in an appendix at the end of this document.*

## Grades

Marking scale: Fail, E, D, C, B, A.

**A** (Excellent) 85-100 points/percent. A distinguished result that is excellent with regard to theoretical depth, practical relevance, analytical ability and independent thought.

**B** (Very good) 75-84 points/percent. A very good result with regard to theoretical depth, practical relevance, analytical ability and independent thought.

**C** (Good) 65-74 points/percent. The result is of a good standard with regard to theoretical depth, practical relevance, analytical ability and independent thought and lives up to expectations.

**D** (Satisfactory) 55-64 points/percent. The result is of a satisfactory standard with regard to theoretical depth, practical relevance, analytical ability and independent thought.

**E** (Sufficient) 50-54 points/percent. The result satisfies the minimum requirements with regard to theoretical depth, practical relevance, analytical ability and independent thought, but not more.

**F** (Fail) 0-49 points/percent. The result does not meet the minimum requirements with regard to theoretical depth, practical relevance, analytical ability and independent thought.

To pass the course, the students must have been awarded the grade of E or higher.

## Entry requirements

STAA31 Statistik: Grundkurs 1 or an equivalent course.

## Subcourses in STAE03, Statistics: Business Analytics

Applies from V15

1501 Business Analytics, 7,5 hp  
Grading scale: Fail, E, D, C, B, A