



Faculty of Economic Sciences, Communication and IT  
Statistics

Syllabus

### **Course Approval**

The syllabus was approved by the Faculty Board of Economic Sciences, Communication and IT on 10 September 2008, and is valid from the Autumn semester of 2007 at Karlstad University.

**Course Code:** STGA01

**Statistics, 15.0 ECTS Credits**

**(Statistik, 15.0 Swedish credit points)**

**Degree Level:** Bachelor

**Progressive Specialisation:** G1N (First cycle, has only upper-secondary level entry requirements)

### **Language of Instruction**

The language of instruction is Swedish.

### **Prerequisites**

General admission requirements plus either

- field-specific eligibility A4 (upper secondary school level Mathematics 3b or 3c, Civics 1b or 1a1 + 1a2), barring Civics 1b or 1a1 + 1a2, or

- field-specific eligibility 4 (upper secondary school level English B, Mathematics C, Civics A) barring English B and Civics A.

### **Major Field of Study**

STA (Statistics)

### **Learning Outcomes**

Upon completion of the course, students should be able to:

-compile and graphically present various types of data material as well as calculate and interpret different summary measures,

-give an account of various concepts of probability and perform simple probability calculations,

-define point estimators and give an account of some of their properties,

-perform statistical inference, i.e. construct confidence intervals and perform hypothesis testing for population parameters and interpret the results,

-apply various statistical methods of investigation and base the interpretation of them on theoretical knowledge of probability theory,

-use the basic functions of statistical software programmes.

### **Content and Form of Instruction**

The course is divided into four sections:

#### Gathering and exploring data:

This section covers various ways of compiling and presenting data (descriptive statistics), an introduction to gathering data is also given.

#### Probability, probability distributions and sampling distributions:

This section defines the concept of probability and introduces students to the laws of probability. The concepts of probability distributions and random variables is introduced as well as some of their properties. This section addresses the way in which a sample estimate, for example the sample mean, varies randomly between samples taken from the same population. This section also provides a foundation on which subsequent course segments are based.

#### Inferential statistics:

This section gives students an introduction to the properties of a point estimate for population means and proportions. Students are also taught how to construct and interpret a confidence interval. An introduction to a number of central concepts in hypothesis testing is also provided.

#### Analyzing associations:

This section introduces the methods used to analyze the association between categorical variables.

#### Reading List

See separate document.

#### Examination

Examination is in the form of take-home assignments and seminars (3 credits) as well as a final written exam (12 credits), testing students' grasp of theory as well as their problem solving skills. Examination based on this syllabus can be completed up to one year after the syllabus is replaced. Two examination opportunities are provided during the first academic year in which the course is not offered, and one in the second year.

#### Grades

One of the grades Distinction (VG), Pass (G), or Fail (U) is awarded in the examination of the course. The course grade reflects both the examination result and the quality of the set assignments.

#### Quality Assurance

Follow-up relating to learning conditions and goal-fulfilment takes place both during and upon completion of the course in order to ensure continuous improvement. Course assessment is based on student views and experiences as reported in written course evaluations and/or group discussions. Students will be informed of the result of the evaluation and of the measures to be taken.

#### Course Certificate

A course certificate will be provided upon request.

#### Additional Information

Students who enrolled before 1 July 2007 will complete their studies in accordance with the requirements of the earlier admission. Upon completion students may request degree and course certificates to be issued under the current ordinance if they meet its requirements.

The local regulations for studies at the Bachelor's and Master's levels at Karlstad University stipulate the obligations and rights of students and staff.

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