



Faculty of Arts and Social Science
Statistics

Syllabus

Statistical theory I

Course Code:	STGB21
Course Title:	Statistical theory I <i>Statistisk teori I</i>
Credits:	7.5
Degree Level:	Undergraduate level
Progressive Specialisation:	First cycle, has less than 60 credits in first-cycle course/s as entry requirements (G1F)

Major Field of Study:
STA (Statistics)

Course Approval

The syllabus was approved by the Faculty of Arts and Social Science 2016-03-07, and is valid from the Autumn semester 2016 at Karlstad University.

Prerequisites

Statistics 30 ECTS cr

Learning Outcomes

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

- identify the probability distribution that fits a given situation and give an account of the connections between different probability distributions,
- identify probability distributions by means of moment-generating functions,
- explain the principles of some common estimation methods and determine parameter estimations with the help of these methods, and
- derive interval estimation in various situations and assess the properties of different point estimates.

Content

The course aims to further develop students' knowledge of probability theory and inference theory. The course covers the following subject areas:

- Various concepts of probability.
- Discrete and continuous random variables and their probability distributions, and Tchebysheff's theorem

- Identifying the distribution of functions of random variables
- Sampling distributions and the central limit theorem
- Common estimation methods, such as method of moments and the method of maximum likelihood
- Point estimates and their properties. Inference-based interval estimation by means of the pivot method.

Reading List

See separate document.

Examination

Assessment is based on hand-in assignments and a written exam.

Grades

One of the grades Distinction (VG), Pass (G), or Fail (U) is awarded in the examination of the course.

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 evaluation is partly based on student views and experiences obtained in accordance with current regulations and partly on other data and documentation. Students will be informed of the result of the evaluation and of any measures to be taken.

Course Certificate

A course certificate will be provided upon request.

Additional information

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