



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 4 April 2007, and is valid from the Autumn semester of 2007 at Karlstad University.

Course Code: STGA09

Mathematical Statistics, 7.5 ECTS Credits
(Matematisk statistik, 7.5 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 A8 (upper secondary school level Physics 2, Chemistry 1, Mathematics 3c), barring Physics 2 and Chemistry 1, or
- field-specific eligibility 8 (upper secondary school level Physics B, Chemistry A, Mathematics D), barring Physics B and Chemistry A.

Major Field of Study

STA (Statistics)

Learning Outcomes

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

- apply a number of different descriptive methods in the description of one or more variables,
- give an account of elementary probability concepts,
- identify discrete and continuous distributions,
- explain the concept of the central limit theorem,
- determine whether a point estimation is efficient and whether it tallies with the mathematical expectation value,
- calculate confidence intervals,
- calculate confidence intervals for a proportion,
- perform hypothesis testing, and
- master various non-parametric methods.

Content and Form of Instruction

The course covers the concept of probability, independent events, conditional probabilities, stochastic variables, mathematical expectation value, variance, some statistical standard distributions, and the central limit theorem as well as practical applications of the above. The course also covers descriptive statistics, linear relations between two variables, estimation and hypothesis testing, random numbers, and simulation. Instruction is partly in the form of computer lab sessions with statistical software programmes.

Reading List

See separate document.

Examination

Examination is in the form of a final written examination and take-home assignments.

Grades

One of the grades Distinction (VG), Pass (G), or Fail (U) is awarded in the examination of the course. The course grade reflects the examination results and lab 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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