Theory of Statistics I

Statistisk teori I
7.5 credits

Single subject and programme course

732G20

Valid from: 2010 Autumn semester

Determined by	**Main field of study**	
The Quality Board at the Faculty of Arts and Sciences	Statistics	
Date determined	**Course level**	**Progressive specialisation**
2007-01-22	First cycle	G1F
Revised by	**Disciplinary domain**	
	Social sciences	
Revision date	**Subject group**	
2011-09-01; 2018-03-22	Statistics	
Offered first time	**Offered for the last time**	
Autumn semester 2007		
Department	**Replaced by**	
Institutionen för datavetenskap		

Course offered for

- Bachelor´s Programme in Statistics and Data Analysis

Entry requirements

37 ECTS Credits with grade pass from courses that are included in Semesters 1 and 2 of the Bachelors program in Statistics and Data Analysis

Intended learning outcomes

The aim of the course is that the student should acquire the theoretical bases of statistical concepts and methods that are required for qualified work and research in statistics.

On completion of the course, the student should
- be able to use knowledge of the most common statistical inference methods
- demonstrate a good understanding of the main principles within point estimation, interval estimation and hypothesis test,
- have the ability to use appropriate estimation and testing methods on different practical problems, and be able to use statistical programs to solve them,
- in a knowledgeable way, be able to assess the theoretical conditions of different statistical methods for a number of different applications.

Course content

The course covers general concepts and methods of probability theory and inference theory.

The following parts are covered:
- basic probability theory,
- random variables, distributions, moments,
- certain known discrete and continuous distributions,
- distribution theory for random sampling,
- point estimation theory, including, among others, the maximum likelihood method,
- interval estimation,
- significance testing,
- power functions,
- Gaussian approximation formula.

Teaching and working methods

The teaching takes the form of lectures, teaching sessions, seminars and computer exercises. Language of instruction: Swedish.

Examination

The course is examined through a written examination.

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.

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.