LUND UNIVERSITY

Faculty of Science

MASC01, Mathematical Statistics: Probability Theory, 7.5 credits
Matematisk statistik: Sannolikhetsteori, 7,5 högskolepoäng
First Cycle / Grundnivå

Details of approval

The syllabus was approved by Study programmes board, Faculty of Science on 2007-06-14 and was last revised on 2007-06-14. The revised syllabus applies from 2007-07-01, autumn semester 2007.

General Information

The course is a mandatory course for first-cycle studies for a Bachelor of Science in mathematics.

Language of instruction: Swedish and English

Main field of studies	Depth of study relative to the degree requirements
Mathematics	G2F, First cycle, has at least 60 credits in first-cycle course/s as entry requirements

Learning outcomes

The aim of the course is that students on completion of the course should have acquired the following knowledge and skills:

Knowledge and understanding
For a passing grade the student must

- be able to explain different concepts in stochastic convergence and how they relate to each other,
- be able to explain the concepts of characteristic and moment generating functions and how these functions can be used,
- be able to describe the multi dimensional normal distribution and the invariance properties under, e.g., linear combinations and conditioning,
- be able to explain the definition and basic properties of the Poisson process.

Competence and skills
For a passing grade the student must

- show the ability to integrate knowledge from the different parts of the course when solving problems.

Course content

The course deepens and expands the basic knowledge in probability theory. Central concepts in the course are transforms of distributions, conditional expectations, multidimensional normal distributions, and stochastic convergence. Further, the concept of stochastic processes is introduced by a fairly thorough treatment of the properties of the Poisson process.

Course design

Teaching consists of lectures and exercises, which to a large extent is dependent on that the student actively participate. The students should therefore be prepared to be able to participate in discussions and problem solving.

Assessment

The examination consists of a written exam followed by an oral exam. Students who

fail the regular exam are offered a re-examination shortly afterwards.

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

Grades

Marking scale: Fail, Pass, Pass with distinction.
For a passing grade on the entire course a passing grade on the written and oral exam are required.

The grade is formed by weighing together the results on the parts which are included the examination.

Entry requirements

For admission to the course knowledge equivalent to the course MASA01, Mathematical Statistics: Basic Course, 15 credits is required.

Subcourses in MASC01, Mathematical Statistics: Probability Theory

Applies from V21

2101   Examination, 7,5 hp
          Grading scale: Fail, Pass, Pass with distinction

Applies from V16

0702   Examination, 6,5 hp
          Grading scale: Fail, Pass, Pass with distinction
0703   Assignment, 1,0 hp
          Grading scale: Fail, Pass