

# Syllabus

for course at first level

**Statistics for Scientists**  
**Statistik för naturvetare**

**7.5 Higher Education**  
**Credits**  
**7.5 ECTS credits**

<b>Course code:</b>	MT1001
<b>Valid from:</b>	Autumn 2007
<b>Date of approval:</b>	2006-09-27
<b>Department</b>	Department of Mathematics (incl. Math. Statistics)
<b>Subject</b>	Mathematical Statistics

## Decision

This syllabus has been approved by the Board of the Faculty of Science at Stockholm University on 27 September 2006.

## Prerequisites and special admittance requirements

Swedish upper secondary school course Mathematics D, or equivalent.

## Course structure

Examination code	Name	Higher Education Credits
S101	Statistics for Scientists	7.5

## Course content

The course covers basic probability concepts as random variable, probability distribution, expected value, variance, correlation and the normal distribution. Common descriptive tools as histogram, normal plots and box plots, and the most common measures of central tendency and dispersion. Basic concepts from the theory of statistical inference as statistical models for data, point and interval estimation of model parameters and hypothesis testing. Methods for planning of experiments: Randomization, factorial experiments, block experiments. Statistical methods: the Student method, regression analysis, analysis of variance and some non parametric method. The poisson distribution and inference on absolute and relative frequencies.

## Learning outcomes

It is expected that the student after taking the course will be able to:

- \* define simple probability theoretical and statistical concepts
- \* judge which statistical methods that are appropriate for analysis of existing data
- \* carry out and interpret statistical analyses on real data
- \* use computer programs as a tool for statistical analysis
- \* do written presentation of statistical analysis

## Education

The education consists of lectures, exercises and submitted work.

## Forms of examination

a. Examination for the course is in the following manner: measurement of knowledge takes place through written examination.

b. Grading is carried out according to a 7-point scale related to learning objectives:

A = Excellent  
B = Very Good  
C = Good  
D = Satisfactory  
E = Sufficient  
Fx = Fail  
F = Fail

c. Grading criteria for the course will be distributed at the start of the course.

d. A minimum grade E is required to pass the course.

e. Students who fail to achieve a pass grade in an ordinary examination have the right to take at least further four examinations, as long as the course is given. The term “examination” here is used to denote also other compulsory elements of the course. Students who have achieved a pass grade on an examination may not retake this examination in order to attempt to achieve a higher grade. Students who have failed to reach a pass grade on two occasions have the right to request that a different teacher be appointed to set the grade of the course. A request for such appointment must be sent to the departmental board.

### **Interim**

Students may request that the examination is carried out in accordance with this syllabus even after it has ceased to apply. This right is limited, however, to a maximum of three occasions during a two-year-period after the end of giving the course. A request for such examination must be sent to the departmental board.

### **Limitations**

The course may not be included in a degree in Mathematics or Matematisk Statistik. The course may not be included together with the course " Statistics for Scientists" (MS 1130).

### **Misc**

The course is taken as an individual course.

### **Required reading**

Course literature is decided by the departmental board and is described in an appendix to the syllabus.