Department of Statistics

Stockholm University

Syllabus

for course at advanced level

Statistical Computation
Statistiska beräkningar

7.5 Higher Education Credits
7.5 ECTS credits

Course code:	ST743A
Valid from:	Autumn 2014
Date of approval:	2014-02-19
Department	Department of Statistics
Main field:	Statistics
Specialisation:	A1F - Second cycle, has second-cycle course/s as entry requirements

Decision

This syllabus was is approved by the Board of the Department of Statistics on February 19, 2014.

Prerequisites and special admittance requirements

112,5 ECTS credits in Statistics, including Probability Theory, advanced level, 7,5 ECTS credits, Inference Theory, advanced level, 7,5 ECTS credits, Multivariate Analysis, advanced level, 7,5 ECTS credits, or equivalent. Swedish upper secondary school course English 6 or equivalent.

Course structure

Examination code	Name	Higher Education Credits
11SB	Statistical Computation	4.5
12IN	Compulsory Exercise in Statistical Computation	3

Course content

The course consists of two course units:

1. Statistical Computation 2. Compulsory Exercise in Statistical Computation

The course presents some basic principles for numerical computing, numerical matrix algebra, solutions to equations, function optimization, and simulation techniques. The course also provides some background knowledge in programming.

The course contents provide knowledge and skills that are useful in statistical computing problems such as design of statistical surveys, estimation, and hypothesis testing.

Learning outcomes

To pass the course, the student should be able to:
* demonstrate knowledge of basic principles of numerical computing
* design and organize algorithms for solving equations and function optimization
* solve statistical computing problem with help of statistical software

* carry out simulation experiments

Education

The teaching consists of lectures and seminars.

Forms of examination

a. Examination will be done by assessing the learning outcomes. Examination will comprise a written test and a written or oral report of a compulsory exercise.
b. Grading is done according to a seven-point scale related to the specified learning outcomes:
A = Excellent
B = Very Good
C = Good
D = Satisfactory
E = Adequate
Fx = Inadequate
F = Totally Inadequate
c. The assessment criteria for the course will be distributed at the beginning of the course.
d. In order to pass the course, the grade E or higher is required on course unit 1 and Pass on course unit 2.
e. Students who have received the grade Fx or F on an examination are entitled to at least four additional examinations to achieve the lowest grade E as long as the course is given. If a student has received the grade Fx on the written reports but is close to passing the assignment, there may be a possibility to hand in an additional assignment. The assignment should be handed in within the given time frame and after the examiner having advised on the need to revise the assignment. Students who have received the grade E on an examination may not retake this examination in order to attempt
to achieve a higher grade. Students who have received the grade Fx or F on an examination on two occasions by the same examiner have the right to request that a different examiner be appointed to set the grade of the examination. The request must be in writing and sent to the head of the department. The examination denotes all compulsory elements of the course. Every time the course is given, there should be two examination opportunities during the current semester.

Interim

When the course syllabus has been withdrawn, the student has the right to request examination once per semester during a period of three semesters in accordance with this syllabus. The request must be in writing and sent to the head of department.

Limitations

The course may not be included in a degree together with the course Statistical Computation (ST705A), 7,5 ECTS credits, the course Statistical Computation (ST725A), 7,5 ECTS credits, or equivalent.

Required reading

The course literature is described in an appendix to the syllabus.