Syllabus

for course at first level

Stochastic Processes and Simulation I
Stokastiska processer och simulering I

7.5 Higher Education Credits
7.5 ECTS credits

Course code:	MT4002
Valid from:	Autumn 2007
Date of approval:	2006-09-27
Department	Department of Mathematics (incl. Math. Statistics)
Subject	Mathematical Statistics
Specialisation:	G1F - First cycle, has less than 60 credits in first-cycle course/s as entry requirements

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
Prerequisites for the course is a course equivalent Probability Theory I, FC, 7.5 hp.

Course structure

Examination code	Name	Higher Education Credits
TENT	Stochastic Processes and Simulation I, exam	6
LABO	Computer Exercises	1.5

Course content
a. The course covers conditional distribution and conditional expectation, Markov chains in discrete and continuous time, birth and death processes, the Poisson process and basic stochastical simulation.
b. The course includes the following elements:
i) Theory, 6 hp
ii) Computer Exercises, 1.5 hp

Learning outcomes
It is expected that the student after taking the course will be able to:
* define basic concepts in the theory of stochastic processes
* solve simple problems on stochastic processes
* carry out simple stochastic simulation using mathematical computer programs
* give written presentation of a stochastic simulation

Education
The education consists of lectures, exercises, computer exercises and tests. Participation in the computer exercises is compulsory. An examiner may rule that a student is not obliged to participate in certain compulsory education if there are special grounds for this after consultation with the relevant teacher.

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, together with approved written presentation of computer exercises.

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 together with the course "Stochastic processes and Simulation I" (MS 1190).

Misc

The course is a component of the Bachelor's Programme in Mathematics, Bachelor's Programme in Biomathematics, and Bachelor's Programme in Mathematics and Economics, and it can also be taken as an individual course.

Required reading

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