GÖTEBORG UNIVERSITY **COURSE PLAN MSA600**
Faculty of Sciences
Mathematical Sciences

MSA600, STATISTICAL GENETICS, 7.5 credit points

Level: advanced

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1. Authorisation.
The course plan has been authorised by the vice-dean of the Department of Mathematical Sciences on November 09, 2006, to be valid from the same date.

Educational field: Mathematical Sciences

2. Educational context.
The course is part of the Master Program in Mathematical Sciences. It is also open for students outside the program who meet the course prerequisites.

3. Prerequisites.
Some basic course in probability theory and statistics (e.g. MSG100 and MSG200)

4. Learning outcomes
The student shall be able to take an active part in designing a genetic linkage and/or association study depending on the observed inheritance patterns. The student shall understand and explain the rational behind the various statistical analysis methods presented in the course. The students shall know how to use and interpret the result from some of the common software tools.

5. Course description.
The course will focus on positional cloning of genes for human traits and diseases through linkage and association analysis. Parametric and nonparametric linkage analysis are presented for dichotomous as well as continuous traits. Methods for association analysis in families and case-control designs using single markers or haplotypes are covered. Some common software tools for linkage analysis, association analysis and haplotype tagging will be introduced.

6. Literature.
Analysis of human genetic linkage by Jurg Ott (Third edition, 1999; Wiley) and handouts.

7. Assessment.
Home assignments, Computer exercises and written final examination.

8. Grades.
The grade levels are Fail (U), Pass (G), and High Pass (VG). A wish for an ECTS grade should be reported to the examiner at the beginning of the course.

9. Course evaluation.
In the middle of the course the teacher arranges an oral feedback discussion with the students. At the end of the course the students are asked to answer an internet based questionnaire. The results of the questionnaire will be processed by the lecturer together with students representatives.

10. Additional information.