# Syllabus for Master programme in Statistics

1. Name (Swedish):	Masterprogram i statistik
2. Name (English):	Master programme in Statistics
3. Credits:	120 Higher Education Credits (120 ECTS credits)
4. Programme code:	SSTAO
5. Valid from:	Autumn 2010
6. Date of approval:	2009-10-08
7. Date of modification:	The syllabus has not been modified.
8. Responsible department:	Department of Statistics

The Department of Statistics is the responsible department for the programme. The programme is administered by a management team. The team consists of a chairman and another member from the Department of Statistics and two members from the business community. These members are appointed by the board of the department. The student council also has the right to appoint a student member to the management team. A substitute shall be appointed to each member of the team.

The main task of the management team is to coordinate the courses in the programme and promote pedagogical improvement, educational quality and the programme's long-term development. The management team will also monitor the research-related teaching and work for the students' employability.

## 9. Decision

This syllabus was approved by the Faculty Board of the Social Sciences, Stockholm University on 2009-10-08.

## 10. Prerequisites and special admittance requirements

Bachelor's Degree including at least 90 ECTS credits in Statistics or equivalent. Swedish upper secondary school course English B or equivalent, or one of the following tests: Cambridge CPE and CAE: Pass. IELTS: 6.0 (with no part of the test below 5.0). TOEFL (paper based): 550 (with minimum grade 4 on the written section). TOEFL (computer based): 213. TOEFL (internet based): 79.

## **11. Objectives**

The Master programme builds on the knowledge and skills that students have acquired in courses in statistics at the undergraduate level up to 90 ECTS credits. The Master programme aims to provide both a greater breadth and a greater depth in statistics. After completing the Master programme, the student is expected either to be able to work independently with qualified statistical analysis in the private or public sector or to continue with postgraduate studies in statistics. The education must be on such a level that the student should be able to obtain theoretical knowledge in statistics at a level and to an extent that at least one academic year of studies can be credited upon admission to the Ph. D. programme in statistics at Stockholm University. The education will be completed when the student will apply his/her acquired knowledge and skills in a study based on current research. This study will be carried out individually and presented in writing in the form of a Master thesis.

#### Knowledge and understanding

After completing the Master programme, the student should:

[K.1] have acquired knowledge and understanding in statistics, including the field's scientific basis and applied methods,

[K.2] have been oriented on current research issues in statistics.

#### Skills and ability

After completing the Master programme, the student should:

[F.1] have the ability to search, collect, evaluate and critically interpret the relevant information in a given problem and to critically discuss phenomena, issues and situations that can arise in a statistical analysis,

[F.2] have the ability to identify, formulate and solve problems independently, and carry out tasks within given time frames,

[F.3] have the ability to present and discuss, orally and in writing, information, problems and solutions in dialogue with different groups, and have the skill required to work independently as a statistician.

#### Ability to make assessments and approach

After completing the Master programme, the student should:

[V.1] have the ability to make assessments in statistics, taking into account relevant scientific, social and ethical aspects,

[V.2] have an insight on the role of knowledge in society and on people's responsibility for how it is used,

[V.3] have the ability to identify his/her need for further knowledge and to expand his/her

competence.

## 12. Programme structure

The programme comprises two years of full time study (120 ECTS credits). These include 45 ECTS credits of mandatory courses, 45 ECTS credits of optional courses and 30 ECTS credits of a master thesis.

The instruction is given in the form of lectures and tutorials for all the courses. The instruction will be in English if necessary. As far as possible the students will work independently with exercises.

For all courses and the master thesis the letters A-E denominate a pass, where A is the highest grade. There are also grades denominating a fail, Fx and F, where Fx is higher than F. In exercise-oriented courses or modules the grade Pass or Fail can be awarded.

## 13. Courses

#### **Mandatory courses**

Mathematics (7.5 ECTS credits)

Probability theory (7.5 ECTS credits)

Statistical inference (7.5 ECTS credits)

Statistical computation (7.5 ECTS credits)

Statistical methods (15 ECTS credits)

## **Examples of optional courses**

Analysis of categorical data (7.5 ECTS credits)

Analysis of repeated measurements (7.5 ECTS credits)

Analysis of survey data (7.5 ECTS credits)

Bayesian statistics - Introduction (7.5 ECTS credits)

Bayesian statistics - Continuation (7.5 ECTS credits)

Planning and analysis of clinical trials (7.5 ECTS credits)

Econometrics (15 ECTS credits)

Economic statistics (7.5 ECTS credits)

Design of Experiments - Introduction (7.5 ECTS credits)

Design of Experiments - Continuation (7.5 ECTS credits)

Non-linear regression (7.5 ECTS credits)

Multivariate methods (7.5 ECTS credits)

Methods for official statistics (7.5 ECTS credits)

Statistical data bases and registers (7.5 ECTS credits)

Game and decision theory (7.5 ECTS credits)

Statistical methods in epidemiology (7.5 ECTS credits)

Survey methodology (7.5 ECTS credits)

Sampling and estimation (7.5 ECTS credits)

Survival analysis (7.5 ECTS credits)

## **Master Thesis**

Master thesis (30 ECTS credits)

#### 14. Exam

An individual who has completed the programme with a passing grade on all courses will, upon application, obtain a Master degree.