

# Education plan

for

**Master's Programme in Biostatistics**  
**Masterprogram i biostatistik**

**120.0 Higher Education**  
**Credits**  
**120.0 ECTS credits**

**Programme code:** NBSTO  
**Valid from:** Autumn 2012  
**Date of approval:** 2011-06-01  
**Department:** Department of Mathematics (incl. Math. Statistics)

## Decision

Denna utbildningsplan är fastställd av Naturvetenskapliga fakultetsnämnden vid Stockholms universitet.

## Prerequisites and special admittance requirements

A Bachelor's degree with 45 ECTS in Mathematics, 15 ECTS in Computer Science and 60 ECTS in Mathematical Statistics is required for admission to the programme. (60 ECTS is equivalent to one year full-time studies.) Second level courses in probability theory, statistical inference theory and linear statistical models are recommended. Swedish upper secondary school course English B or equivalent or one of the following tests; Cambridge CPE och 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 test part). TOEFL (computer based): 213. TOEFL (internet based): 79.

## Programme structure

The Master's Programme in Biostatistics is an education that leans towards students who want to provide deeper knowledge within mathematical statistics, especially within biostatistics. The education's fields are mathematical statistics, scientific computing, biology and medicine. The programme is a two year full-time study programme that is composed of courses in mathematical statistics on the second level. The education covers 120 credits. The education ends with a degree project in biostatistics for 30 credits. Prerequisites are a knowledge equivalent to courses Probability Theory II, FC, 7.5 hp, Theory of Statistical Inference, FC, 7.5 hp and Linear Statistical Models, FC, 7.5 hp. A student who does not have these prerequisites is recommended to study them within facultative block.

## Goals

The main field of study is mathematical statistics.

For a Degree of Master students must

- demonstrate knowledge and understanding in their main field of study, especially biostatistics, both broad knowledge in the field and substantially deeper knowledge of certain parts of the field, together with a deeper insight into current research and development work,
- demonstrate deeper methodological knowledge within mathematical statistics,
- demonstrate an ability to critically and systematically integrate knowledge and analyse, assess and deal with complex phenomena, issues and situations, even when limited information is available,
- demonstrate an ability to critically, independently and creatively identify and formulate issues and to plan, and in using appropriate methods, carry out advanced tasks within specified time limits, so as to contribute to the development of knowledge and to evaluate this work,

- demonstrate an ability to clearly present and discuss their conclusions and the knowledge and arguments behind them, in a dialogue with different groups, orally and in writing, in national and international contexts,
- demonstrate the skill required to participate in research and development work or to work independently in other advanced contexts,
- demonstrate an ability to make assessments in the main field of study, taking into account relevant scientific, social and ethical aspects, and demonstrate an awareness of ethical aspects of research and development work,
- demonstrate insight into the potential and limitations of science, its role in society and people's responsibility for how it is used, and
- demonstrate an ability to identify their need of further knowledge and to take responsibility for developing their knowledge.

### **Courses**

Compulsory courses:

1. Statistical Models, SC, 7.5 hp (MT7002)
2. Computer Intensive Statistical Methods, SC, 7.5 hp, (MT7024)
3. Biostatistics, Degree Project, SC, 30 hp (Ms).

At least four of elective courses 4-11 below:

4. Epidemiology, SC, 7.5 hp, (MT7008)
5. Bayesian Methods, SC, 7.5 hp, (MT7003)
6. Generalized Linear Models, SC, 7.5 hp, (MT7004)
7. Survival Analysis, SC, 7.5 hp, (MT7006)
8. Repeated Measurements, SC, 7.5 hp, (MT7007)
9. Clinical Trials, SC, 7.5 hp, (MT7009)
10. Non-Parametric Methods, SC, 7.5 hp, (MT7005)
11. Applied Biostatistics, SC, 7.5 hp, (MT7026)

Additional elective courses: The collection of elective courses is decided by the department board. The list of elective courses is brought up to date every new academic year. Before every new start of a programme there will be a list showing a minimal amount of elective courses that will be guaranteed during the time of the programme.

Maximum 30 credits is allowed to be chosen from first level.

### **Degree**

Master's Degree

### **Misc**

Students, admitted to the program and not having finished it within two years, may request that they be allowed to finish the program even after it has ceased to apply. By this the limitations given in the syllabi of the courses in the program must be taken into consideration.