# Syllabus

for course at advanced level

**Generalized Linear Models**

**Generaliserade linjära modeller**

**7.5 Higher Education Credits**

**7.5 ECTS credits**

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|---|---|
| **Course code:** | ST425A |
| **Valid from:** | Autumn 2010 |
| **Date of approval:** | 2010-05-19 |
| **Department** | Department of Statistics |
| **Main field:** | Statistics |
| **Specialisation:** | A1N - Second cycle, has only first-cycle course/s as entry requirements |

**Decision**

This syllabus was approved by the Board of the Department of Statistics on May 19, 2010.

**Prerequisites and special admittance requirements**

90 ECTS credits in Statistics or equivalent and Swedish upper secondary school course English B or equivalent.

**Course structure**

| Examination code | Name | Higher Education Credits |
|---|---|---|
| 11GE | Generalized linear models | 7.5 |

**Course content**

The course consists of one course unit:

1. Generalized linear models
The course aims at giving a solid base of statistical principles and methods used in biostatistics.

The course starts off with an overview of linear statistical models. The concepts that are more thoroughly treated are:
Generalized linear models: likelihood-based inference. Models with different link-functions and distributions, such as models for discrete data: binary regression; analysis of contingency tables. Introduction to log-linear models. Estimation and model adjustment. Residual analysis. Practical examples from different fields of application.

**Learning outcomes**

After completing the course the student should be able to:
- have obtained an overview of models classified as generalized linear models
- apply the most common of these models in statistical analysis of medical data or in other fields.
- decide which model is the most appropriate in the different applications that may occur
- assimilate the content in scientific papers on generalized linear models
- be able to, both in oral and written form, account for results of realized analyses based on generalized linear models

**Education**

Teaching forms may consist of lectures, exercises, seminars, computer sessions and tutoring. Some compulsory attendance and other mandatory elements may be required.

**Forms of examination**

a. Examination will be done by assessing the learning outcomes. Examination will comprise a written test at the end of the course and/or written and oral presentations of compulsory exercises.

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 the course unit.

e. Students who receive 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 still given.

Students who receive the grade E or higher on an examination may not retake this examination in order to attempt to achieve a higher grade.

Students who receive the grade Fx or F on an examination twice by the same examiner are entitled to request that a different examiner be appointed to set the grade of the examination. Such a request must be in writing and sent to the head of the department.
The term examination denotes all compulsory elements of the course.

**Interim**

Students can request examination in accordance with this syllabus up to three times during a period of two years after the course is no longer given. Such a request must be in writing and sent to the head of the department. Here, the term examination denotes all compulsory elements of the course.

**Limitations**

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**Misc**

The course is part of the collaboration in Biostatistics between Mathematical Statistics and Statistics at Stockholm University and Uppsala University.
The course has previously been given under the course code ST409A.

**Required reading**

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