SM00106  Regression methods with medical applications, 3 credits
Regressionsmetoder med medicinsk tillämpning, 3 högskolepoäng

Third-cycle level / Forskarnivå

Confirmation
This syllabus was confirmed by the Council for PhD Education at Sahlgrenska Academy on 2019-03-25, and is valid from Autumn semester 2019.

Responsible Department
Institute of Medicine, Sahlgrenska Academy

Entry requirements
Entrance qualifications is that the student is a registered PhD student and completed (passed) the courses "Introduction to research, 8 credits" and "Medical statistics I, 5 credits) (or equivalent courses).

Learning outcomes
After completing the course the PhD student is expected to be able to:

Knowledge and understanding
- discuss the underlying assumptions of different models
- interpret the result of different models
- discuss and evaluate the relative strength and weaknesses of different regression models and give an account of when the different models are appropriate to use.

Skills and ability
- formulate research questions in terms of statistical models
- conduct regressions analysis in a statistical package.

Judgement and approach
- judge the need of a specific statistical analysis in related to a research question.
Course content
This is an advance course on regression models, built on Medical statistics I. The following areas are central to the course:
- Linear regression models; confounding and interaction
- Logistic regression models
- Survival analysis, and Cox regression models
- Introduction to model building.
- Practical exercises of the above moments.

Types of instruction
Traditional lectures and computer sessions.

Language of instruction
The course is given in English.

Grades
The grade Pass (G) or Fail (U) is given in this course.

Types of assessment
There are mandatory computer exercises and home assignments that will be examined continuously throughout the course.

A doctoral student who has failed a test twice has the right to change examiners, if it is possible. A written application should be sent to the Institute.

Course evaluation
The Sahlgrenska Academy's common course evaluation will used in the last lecture.

Other information
Requested readings: "Regression Methods in Biostatistics" by Vittinghoff, Glidden, Shiboski and McColloch and articles.