SM00109 Model-building strategy in regression, 3 credits
Modellbyggande av statistiska regressionsmodeller, 3 högskolepoäng

Third-cycle level / Forskarnivå

Confirmation
This syllabus was confirmed by the Council for PhD Education at Sahlgrenska Academy on 2019-09-25, and is valid from Spring semester 2020.

Responsible Department
Institute of Medicine, Sahlgrenska Academy

Entry requirements
Admitted to postgraduate education. Completed the courses "Introduction to research", "Medical Statistics I" and "Regression methods with medical applications" or equivalent.

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

Knowledge and understanding
- account for the statistical assumption behind different regression models.
- account for all of the steps involved in model building.
- analyze and interpret different types of data.

Competence and skills
- draw a DAG.
- discuss different methods for model building.
- conduct advanced model building in a statistical software.

Judgement and approach
- assess how different inclusion criteria for explanatory variables affects the result in model
building.
- assess the need of a specific statistical analysis and data in relation to a research question using statistical regression methods

Course content
This is an advanced course in model building strategy in regression. The Ph.D student will use their own data. The course will cover the following topics:
- An introduction to causal inference.
- Directed acyclic graph (DAG).
- Variable selection procedures, i.e. forward, backward and stepwise.
- Advanced training in statistical building strategy.
- Practical exercises based on analyzing, interpreting and reporting both example data sets and the Ph.D. students own data.

Types of instruction
Lectures and computer exercises.

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
Mandatory computer exercises and homework will be examined continuously throughout the course.
A doctoral student has the right to request a change of examiner if failed twice on the same exam, if this is practically possible. Such a request should be put forward in writing and addressed to the institute.

Course evaluation
Course evaluation is carried out in writing with the aid of the Sahlgrenska Academy's common course evaluation, and orally via a dialogue with the students. The teacher responsible for the course compiles an analysis of the course evaluations and makes suggestions for the development of the course. Analyses and suggestions are conveyed to the students and published on the University of Gothenburg's learning platform.