SM00046 Medical Statistics I, 5 credits
Medicinsk statistik I, 5 högskolepoäng

Confirmation
This syllabus was confirmed by the Council for PhD education at Sahlgrenska Academy on 15-09-2015, and was last revised on 28-08-2018. The revised course syllabus is valid from the spring semester 2019.
Ansvarig institution: Medicine

Entry requirements
Admitted to PhD studies. Completed the course Introduction to research.

Course content
An introductory course that covers categorical and numerical data, measures of location and dispersion, histograms, box plots, bar diagrams, scatter plots, normal distribution, hypothesis testing, confidence intervals, p-values, power and agreement.
Five important areas:
1) Two sample t-test
2) Paired t-test
3) Non-parametric tests
4) Chi-square tests on contingency tables
5) Linear regression
Some corresponding nonparametric alternatives to the above tests. Logistic regression, ANOVA and survival analysis will be introduced.
Statistical software labs with main focus on SPSS.

Learning outcomes
Knowledge and understanding
- Account for the basic concepts and principles of hypothesis testing.
- Define the theoretical assumptions for the tests.
Learning outcomes: Skills and ability
- Formulate the research in terms of models.
- Use appropriate tests for different research questions.
- Apply the tests with common statistical software and interpret the output.
- Discuss choice of methods with statisticians
Judgement and approach
- Appraise statistical results presented in for example scientific papers.
Types of instruction
Föreläsningar och datorövningar

Requested readings
Lecture notes (150 pages). Recommended literature in Swedish and English.

Assessment
Mandatory home assignments and computer exercises. 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 department.

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

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, GUL.

Additional information
The course will be given in English and Swedish, respectively, once per term.