

SLUkurs

Syllabus

PFS0107 Statistics, with mathematics, 4.0 credits

Syllabus approved

2014-01-23

Subjects

Mathematic Statistics

Education cycle

Third cycle

Grading scale

Pass / Failed

The requirements for attaining different grades are described in the course assessment criteria which are contained in a supplement to the course syllabus. Current information on assessment criteria shall be made available at the start of the course.

Language

English

Prior knowledge

Apart from a general familiarity with mathematics and statistics taught at Swedish gymnasiums (high schools), the course has no prerequisites.

Objective, including learning outcomes

Upon successful completion of the course participants will be able to analyze data visually, using exploratory data analysis, as well as statistically, using univariate

statistical tools, and also to critically examine the validity of the statistical analyses. The participant will possess an elementary knowledge of linear algebra, sufficient to build an understanding and working knowledge of multivariate statistical tools, to be studied in the courses Multivariate statistics, Regression analysis, and Design of experiments.

Content

Linear algebra:

- Systems of linear equations;
- Matrices and vectors;
- Determinants and matrix inverses;
- Orthogonal bases;
- Eigenvalues and eigenvectors of matrices;
- Diagonalisation of matrices;
- Method of least-squares.

Statistics:

- Levels of measurement;
- Exploratory data analyses;
- Data transformations;
- Statistical and mathematical model building;
- One- and two-sample t-tests;
- Paired t-test
- Confidence intervals;
- Chi-square tests;
- Goodness-of-fit tests;
- Correlation analyses;
- Tests of normality of model residuals;
- Test of auto-correlation in model residuals;
- Test of heteroscedasticity of model residuals;
- Wilcoxon-Mann-Whitney test;
- Wilcoxon signed rank test;
- Sign test.

Requirements for examination

Take-home examination, hand-ins

Additional information

Responsible department

Department of Forest Resource Management