

SLUkurs

Syllabus

PNSo103 Statistics II: Experimental Design and ANOVA, 4.0 credits

Syllabus approved

2013-07-05

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

Statistics I: Basic Statistics or equivalent

Objective, including learning outcomes

The objective of the course is to give an overview over the basic principles behind design of experiments and appropriate statistical methods like Analysis of Variance (ANOVA) to analyse them. On completion of the course, the student will be able

to:

- describe basic principles in experimental design
- design an experiment for a given problem
- describe ANOVA models including conditions and assumptions
- select an appropriate ANOVA model for a given experimental design
- carry out an ANOVA analysis
- interpret and evaluate results correctly and draw reasonable conclusions
- clearly and concisely communicate results and conclusions
- critically assess published results from ANOVA models
- use statistical software for analysis

Content

The course will cover the following topics:

- Design of experiments.
- Analysis of variance of experiments with one or more fixed and random factors.
- Randomized block designs.
- Experiment with crossed and nested factors.
- Multiple comparisons.
- Analysis of residuals.
- Non-parametric ANOVA, Kruskal–Wallis test.

Requirements for examination

Requirements for examination:

Passed exercises and passed examination in written and/or oral form.

Additional information

Implementation

Scheduled activities:

Lectures 16 h

Computer exercises 4 h

Examination and course evaluation 10 h

Self studies 80

Totally 110 h

Responsible department

Department of Energy and Technology