

# SLUkurs

## Syllabus

**PNSo179 Statistics II: Experimental Design and ANOVA, 4.0 credits**

## Syllabus approved

2019-03-08

## 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 of the basic principles behind design and analysis of factorial experiments. On completion of the course, the student will be able to:

- describe basic principles in experimental design and specify analysis of variance (ANOVA) models including conditions and assumptions
- select an appropriate ANOVA model for a given experimental design
- carry out ANOVA using the statistical software R or SAS
- interpret and evaluate results correctly and draw reasonable conclusions
- clearly and concisely communicate results and conclusions

## **Content**

The course will cover the following topics:

- Analysis of experiments with one or more fixed and random factors, randomized block designs, crossed and nested factors.
- Multiple comparisons.
- Analysis of residuals.
- Non-parametric ANOVA, Kruskal–Wallis' and Friedman's tests.
- Mixed-effects models

## **Requirements for examination**

Requirements for examination:

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

## **Additional information**

## **Responsible department**

Department of Energy and Technology