

**MSA830, STATISTICAL ANALYSIS AND EXPERIMENTAL DESIGN,
7.5 credit points**

Level: advanced

1. Authorisation.

The course plan has been authorised by the vice-dean of the Department of Mathematical Sciences on November 9, 2006, to be valid from July 1, 2007.

Educational field: Mathematical Sciences

2. Educational context

The course is part of several Master of Science Programs at Faculty of Sciences of Göteborg University. It is also open for students outside the program who meet the course prerequisites.

3. Prerequisites

4. Goals and learning outcomes

Working in natural sciences often means studying data with certain degree of uncertainty. At the end of the course, the student should be able to

- fully appreciate that data sampling experiments have to fulfill certain assumptions, needed in order to make meaningful the use of statistical methods,
- to plan experiments and analyse the data in some typical situations.

5. Course description

The course consists of lectures, exercises, and computer laborations.

Course content:

- overview of basic probability theory
- principles of statistical inference
- comparative studies for two treatments
- randomization and blocking of nuisance factors
- one-way analysis of variance with and without blocking
- two-way analysis of variance

- regression analysis.

6. Literature

Box, Hunter, Hunter, "Statistics for Experimenters", Second edition.

7. Assessment

Written final examination.

8. Grades

The grade levels are Fail (U), Pass (G), and High Pass (VG). A wish for an ECTS grade should be reported to the examiner at the beginning of the course.

9. Course evaluation

In the middle of the course the teacher arranges a feedback discussion with the students and at the end of the course the students will be asked to answer a questionnaire. The results of the questionnaire will be processed by the teacher together with student representatives.

10. Additional information.

The course is given in English.