



COURSE SYLLABUS

Mathematical Statistics, 6 credits

Matematisk statistik, 6 högskolepoäng

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| Course Code: TMAK17 | Education Cycle: First-cycle level |
| Confirmed by: Dean Feb 1, 2017 | Disciplinary domain: Natural sciences |
| Valid From: Jan 1, 2018 | Subject group: MS1 |
| Version: 4 | Specialised in: GIF |
| Reg number: JTH 2018/100-313 | |

Intended Learning Outcomes (ILO)

On completion of the course, the student should

Knowledge and understanding

- display knowledge of the most common methods that is used to numerically and graphically describe a data set

Skills and abilities

- demonstrate ability to perform basic probability calculations involving random variables
- demonstrate ability to compute estimates of relevant statistical parameters from a random sample
- demonstrate ability to perform different types of hypothesis tests and compute the power of such a test in the case of normal distribution assumption

Judgement and approach

- display understanding of the concept of random variability and judge the benefits and risks of using different statistical models

Contents

The course includes the following topics:

- Basic probability theory
- Random variables
- Discrete and continuous distributions, especially the normal distribution
- Central limit theorem with applications
- Descriptive statistics
- Point estimates and interval estimates
- Hypothesis testing

Course unit 1, 0,0 credits

Type of instruction

Lectures and seminars.

The teaching is conducted in English.

Prerequisites

General entry requirements and completed course Single Variable Calculus, 9 credits or Basic Calculus, 6 credits (or the equivalent).

Examination and grades

The course is graded 5,4,3 or Fail.

Registration of examination:

| Name of the Test | Value | Grading |
|------------------|-----------|---------|
| Examination | 6 credits | 5/4/3/U |

Course literature

Literature

The literature is preliminary until one month before the course starts.

Probability, Statistics and stochastic Processes

Författare: Peter Olofsson, Mikael Andersson

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