



COURSE SYLLABUS

Mathematical Statistics SSCM, 7.5 credits

Matematisk statistik SSCM, 7,5 högskolepoäng

Course Code: TMSK19	Education Cycle: First-cycle level
Confirmed by: Dean Dec 4, 2018	Disciplinary domain: Natural sciences
Revised by: Director of Education Nov 5, 2021	Subject group: MA1
Valid From: Jan 1, 2022	Specialised in: G1F
Version: 3	Main field of study: Industrial Engineering and Management

Intended Learning Outcomes (ILO)

After a successful course, the student shall

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

Judgement and approach

- display an 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
- Linear Regression analysis

Type of instruction

Lectures and tutorials.

The teaching is conducted in English.

Prerequisites

General entry requirements and completed course in Basic Calculus, 7,5 credits

Examination and grades

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

Registration of examination:

Name of the Test	Value	Grading
Written Examination	7.5 credits	5/4/3/U

Course literature

The literature list for the course will be provided 8 weeks before the course starts.

Title: Probability, Statistics and stochastic Processes

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