



## COURSE SYLLABUS

# Mathematical Statistics, 6 credits

*Matematisk statistik, 6 högskolepoäng*

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

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### 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

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