



# AF2023 Theory and Methodology of Science and Risk and Safety in Building Sciences 7.5 credits

Vetenskapsteori och vetenskaplig metodik och risk och säkerhet för byggnadsverk

This is a translation of the Swedish, legally binding, course syllabus.

## Establishment

Course syllabus for AF2023 valid from Autumn 2022

## Grading scale

A, B, C, D, E, FX, F

## Education cycle

Second cycle

## Main field of study

The Built Environment

## Specific prerequisites

Minimum 30 credits of courses at advanced level towards the chosen specialization for degree project within the master's program TCAEM.

Eng B/6 according to the Swedish upper secondary school system.

## Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

## Intended learning outcomes

After completing the course, the student must, in theory of science and scientific methodology, both orally and in writing be able to:

Identify definitions and descriptions of concepts, theories and problem areas, and identify the correct application of these concepts and theories.

Describe concepts, theories and general problem areas, and apply concepts and theories to specific cases.

Critically discuss the definitions and applications of concepts and theories with respect to specific cases of scientific research.

After completing the course, the student must, in risk and safety analysis, be able to:

Analyze risk and safety-related issues for construction works.

Reflect on risk and safety-related issues for the built environment from a gender perspective.

## Course contents

Scientific knowledge

Hypothesis testing

Causes and correlations

Observations and measurements

Experiments

Models

Law and explanations

The development of science

Research ethics

Scientific papers and peer review

Safety analysis general, Hashofer/Lind method

Special safety analysis methods for geo structures

Safety analysis methods for steel and concrete structures

Idealisation of structures, Load combination, Methods in standards

## Examination

- SEMA - Seminar, 1.0 credits, grading scale: P, F
- PROA - Project, 1.5 credits, grading scale: P, F
- TENA - Written exam, 2.5 credits, grading scale: A, B, C, D, E, FX, F
- TENB - Written exam, 2.5 credits, grading scale: A, B, C, D, E, FX, F

Based on recommendation from KTH's coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

If the course is discontinued, students may request to be examined during the following two academic years.

## Other requirements for final grade

Passed seminar

Passed written exam

Passed exercises

## Ethical approach

- All members of a group are responsible for the group's work.
- In any assessment, every student shall honestly disclose any help received and sources used.
- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.