



COURSE SYLLABUS

Preparatory Mathematics, 7.5 Pre-education credits

Förberedande matematik, 7,5 förutbildningspoäng

Course Code: TFMF05	Education Cycle: Pre-university level
Confirmed by: Dean Oct 15, 2024	Disciplinary domain: Natural sciences
Revised by: Director of Education Oct 23, 2024	Subject group: MA1
Valid From: Aug 1, 2025	Specialised in: GXX
Version: 2	

Intended Learning Outcomes (ILO)

After a successful course, the student shall

Knowledge and understanding

- display knowledge of basic mathematical concepts
- display knowledge of vectors
- display knowledge of elementary functions and their graphs
- display knowledge of logarithms
- display knowledge of derivatives and derivation rules
- display knowledge of primitive functions and integrals
- display knowledge of basic trigonometric concepts

Skills and abilities

- demonstrate ability to solve equations and systems of equations with applications
- demonstrate ability to perform arithmetic operations with algebraic expressions and formulas
- demonstrate ability to apply trigonometry and derivatives

Contents

The course includes basic mathematics. It provides mathematical education and a preparation for further studies in mathematics.

The course includes the following parts:

- **Algebra:** Basic concepts and relationships: rational numbers and expressions, powers and power laws. first and second-degree equations, inequalities, Root equations, systems of equations, formulas and formula management, logarithms and laws of logarithms, polynomials, absolute sums
- **Theory of functions:** the concept of function, first and second order functions, power functions, exponential functions and the relationship between function and graph
- **Trigonometry:** trigonometry in right-angled and arbitrary triangles, the unit circle and the triangle theorems.
- **Vectors:** the concept of vectors in coordinate and polar form, addition and subtraction of

vectors and multiplication with scalars

- **Derivative:** derivative definition and derivation rules. Derivation of elementary functions with applications
- **Integrals:** primitive functions and integrals with applications

Type of instruction

Lectures and exercises.

The teaching is conducted in English.

The teaching may sometimes be conducted in Swedish.

Prerequisites

General entry requirements and Mathematics 3b (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	7.5 credits	5/4/3/U

Course literature

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