

COURSE SYLLABUS

Preparatory Mathematics, 7.5 Pre-education credits

Förberedande matematik, 7.5 förutbildningspoäng

Course Code:	TFMF05	Education Cycle:	Pre-university level
Confirmed:	May 07, 2025	Disciplinary domain:	Natural sciences
Valid From:	Sep 01, 2025	Subject group:	Mathematics

Intended Learning Outcomes (ILO)

On completion of the 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

Content

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.

Language of instruction is in Swedish or English.

Entry requirements

General entry requirements and Mathematics 3b (or the equivalent)

Examination and grades

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

Registration of examination:

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

Course literature

Please note that changes may be made to the reading list up until eight weeks before the start of the course.

The literature is provided by the course manager.