



## Course syllabus

Faculty of Technology

Department of Mathematics

1MA401 Grundläggande matematik, 7,5 högskolepoäng

Basic Mathematics, 7.5 credits

### Main field of study

Mathematics

### Subject Group

Mathematics

### Level of classification

First Level

### Progression

G1N

### Date of Ratification

Approved 2014-10-03

Revised 2019-03-13 by Faculty of Technology. Assessment methods are changed.

The course syllabus is valid from autumn semester 2019

### Prerequisites

General entry requirements and Mathematics 4 or Mathematics D (Field-specific entry requirements 9/A9).

## Objectives

After completing the course, the student should be able to

- solve problems, perform calculations, and conduct lines of reasoning within the part of mathematics that is covered by the course, and to communicate these solutions, calculations, and reasonings in writing
- describe definitions, and formulate and prove theorems that are central to the course.

## Content

Numbers, logic, set theory, algebraic expressions, equations and inequalities, elementary functions, divisors, prime numbers, division algorithm, recurrence relations, induction, permutations, combinations, binomial theorem, complex numbers, complex plane, de Moivre's formula, complex quadratic equations, factor theorem, binomial equations.

## Type of Instruction

Lectures and seminars.

## Examination

The course is assessed with the grades A, B, C, D, E, Fx or F.

The grade A constitutes the highest grade on the scale and the remaining grades follow in descending order where the grade E is the lowest grade on the scale that will result in

a pass. The grade F means that the student's performance is assessed as fail (i.e. received the grade F).

The student's knowledge is assessed in the form of a written exam.

### Course Evaluation

A course evaluation will be carried out and compiled after the course is completed. The compilation will be presented to the current board as well as to the students and filed.

### Credit Overlap

The course cannot be included in a degree along with the following courses of which the content fully, or partly, corresponds to the content of this course: 1MA101 Basic Mathematics

### Other

During the course or in close connection to the course, a course evaluation is to be carried out. The result and analysis of the course evaluation are to be communicated to the students who have taken the course and to the students who are to participate in the course the next time it is offered. The course evaluation is carried out anonymously. The compiled report will be filed at the Faculty.

### Required Reading and Additional Study Material

Kevin Houston, *How to think like a Mathematician*, Cambridge Uni. Press, 2009, 200 pages

### Required reading

Carl Stitz, Jeff Zeager (2013). *Precalculus*. Available:<http://www.stitz-zeager.com/szprecalculus07042013.pdf>. 600 (1079)

Material from the department