



DEPARTMENT OF MATHEMATICAL SCIENCES

MMG100 Elementary Number Theory, 7.5 credits

Elementär talteori, 7,5 högskolepoäng

First Cycle

Confirmation

This course syllabus was confirmed by Department of Mathematical Sciences on 2017-06-01 and was last revised on 2018-11-21 to be valid from 2019-06-02, spring semester of 2019.

Field of education: Science 100%

Department: Department of Mathematical Sciences

Position in the educational system

Main field of studies

Mathematics

Specialization

G1N, First cycle, has only upper-secondary level entry requirements

Entry requirements

General entrance requirements for university studies and the Swedish upper secondary course Mathematics E or Mathematics 4 or equivalent.

Learning outcomes

On successful completion of the course the student will be able to:

- formulate and prove theorems in elementary number theory,
- apply such theorems to solve problems in number theory,
- use concepts in the theory of congruence classes.

Course content

Prime numbers and divisibility. Congruences. Applications of congruences, for example the Chinese remainder theorem and factorization of integers. Fermat's little theorem, the theorems of Wilson and Euler. Multiplicative functions. Cryptography. Primitive roots

with applications. Diophantine equations.

Form of teaching

Language of instruction: Swedish

Assessment

The course is assessed through a written examination at the end of the course. During the course, there may be optional assignments that give bonus points on the exam. Examples of such assignments are small written tests, labs, and oral or written presentations. Information for the current course instance is given via the course homepage.

If a student, who has failed the same examined component twice, wishes to change examiner before the next examination, a written application shall be sent to the department responsible for the course and shall be granted unless there are special reasons to the contrary (Chapter 6, Section 22 of Higher Education Ordinance).

Grades

The grading scale comprises: Pass with Distinction (VG), Pass (G) and Fail (U).

Course evaluation

The course is evaluated with an anonymous questionnaire and/or a discussion with the student representatives. The result and any changes to the course will be communicated to the students who carried out the evaluation and to the students who are to start the course.

Additional information

For literature list, see:

<https://www.chalmers.se/sv/institutioner/math/utbildning/grundutbildning-goteborgs-universitet/kurslitteratur/Sidor/Kurslitteratur-i-matematik.aspx>

The course syllabus of MMG100 was originally established to apply from 01/07/2007, when it replaced MAN060.