Department of Mathematics
(incl. Math. Statistics)

Stockholm University

# Syllabus

for course at advanced level

**Number Theory**
**Talteori**

**7.5 Higher Education Credits**
**7.5 ECTS credits**

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|---|---|
| **Course code:** | MM8012 |
| **Valid from:** | Autumn 2007 |
| **Date of approval:** | 2006-09-27 |
| **Department** | Department of Mathematics (incl. Math. Statistics) |
| **Subject** | Mathematics |

## Decision

This syllabus was approved by the Board of the Faculty of Science at Stockholm University on 27 September 2006.

## Prerequisites and special admittance requirements

Admission to the course requires knowledge equivalent to 90 credits in mathematics, where Analytic Functions, 7.5 credits, and Algebra III, 7.5 credits, or equivalent, are included. English B/English 6 or equivalent.

## Course structure

| Examination code | Name | Higher Education Credits |
|---|---|---|
| F812 | Number theory | 7.5 |

## Course content

The course covers: the basics of number theory, the quadratic reciprocity theorem, unique prime factorization of ideals in rings of algebraic integers, finiteness of the class number, Dirichlet's theorem of primes in arithmetic progressions.

## Learning outcomes

After the course, students are expected to be able to:
* account for and prove basic theorems in classical number theory.

## Education

Instruction consists of lectures and exercises.

## Forms of examination

a. The course is examined as follows: Knowledge assessment takes the form of written and/or oral examination.

b. Grades are assigned according to a seven-point goal-related grading scale:

A = Excellent
B = Very good
C = Good
D = Satisfactory

E = Sufficient
Fx = Fail (more work required before credit can be awarded)
F = Total fail

c. The grading criteria will be distributed at the beginning of the course.

d. To be awarded a pass, the minimum grade E is required.

e. Students who fail an ordinary examination are entitled to take at least further four examinations, as long as the course is given. Examinations also include other obligatory elements of the course. Students who have passed an examination may not resit it in order to achieve a higher grade. Students who have failed on two occasions are entitled to request that a different teacher be appointed to set the grade of the course. Any such request must be made to the departmental board.

### Interim

Students may request that the examination be conducted in accordance with this course plan even after it has ceased to be valid. However, this may not take place more than three times over a two year period after course instruction has ended. Requests must be made to the departmental board.

### Limitations

The course may not be included in a degree together with the course Number Theory (MA4300).

### Misc

The course is a component of the Master's Programmes in Mathematics and in Applied Mathematics, but it can also be taken as an individual course.

### Required reading

Course literature is decided by the departmental board and described thereafter in an appendix to the course plan.