



DEPARTMENT OF MATHEMATICAL SCIENCES

MMG710 Fourier Analysis, 7.5 higher education credits

Fourieranalys, 7,5 högskolepoäng

First Cycle

Confirmation

This course syllabus was confirmed by Department of Mathematical Sciences on 2017-04-11 to be valid from 2017-07-01, autumn semester of 2017.

Field of education: Science 100%

Department: Department of Mathematical Sciences

Position in the educational system

The course can be part of the following programme: 1) Bachelor's Programme in Mathematics (N1MAT)

Main field of studies

Mathematics

Specialization

G2F, First Cycle, has at least 60 credits in first-cycle course/s as entry requirements

Entry requirements

The prerequisites for the course Fourier Analysis are general entry requirements and the equivalent of 60 higher education credits in Mathematics.

Learning outcomes

After passing the course, the student should be able to:

- expand a function in a Fourier series
- describe different types of convergence for function series
- describe the fundamental properties of the Fourier and Laplace transforms and use rules of calculation for these transforms
- describe and handle functions as vectors in function spaces
- use series expansion to solve partial differential equations.

Course content

Trigonometric Fourier series and their convergence. Function spaces with different norms. Orthogonal systems. Fourier transform and Laplace transform. Applications to partial differential equations, such as the heat and wave equations.

Form of teaching

The course will be taught in English unless everyone involved speaks Swedish.

Assessment

An examination will be given 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 about this is found on the course home page.

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 a questionnaire and/or a discussion with the student representatives.

Additional information

For a list of course literature, see:

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

The syllabus for MMG710 was first established from 2007-07-01, when it replaced MAN530.