

Syllabus for Fourier Analysis 7.5 higher education credits

1. Course details

Approved by the Education Committee of the Faculty of Science 16-01-2012. The syllabus is valid from 16-01-2012. The course is at advanced level, A1F.

2. General information

The course is part of the main field of study in Mathematics at the Faculty of Science. The course is optional at the advanced level in a Master's degree in Mathematics. The course is also offered as a single subject course. The language of instruction is contingently English.

3. Learning outcomes

On completion of the course, the students shall:

- have developed the ability for mathematical communication orally and in writing,
- be familiar with the theory and applications of Fourier series and Fourier transforms,
- have acquired basic knowledge for further studies in mathematics.

4. Course content

Fourier series, pointwise and mean-square convergence, convolution kernels, harmonic functions, Fourier transforms, Fourier's inversion theorem, the heat equation, Poisson's summation formula, Heisenberg's inequality, Paley-Wiener's theorem, applications of Fourier series in Analysis and Number Theory.

5. Teaching and assessment

Teaching consists of lectures and group exercises. An essential element of the group exercises consists of training in problem solving. Compulsory hand-in exercises might be given during the course.

Examination takes the form of a written test and, in connection with this, an oral examination. The oral examination is held only for those who passed the appurtenant written test.

Students who fail the ordinary test will have an opportunity to take another test in close proximity to the ordinary test.

6. Grades

Students are awarded one of the following grades: Distinction, Pass and Fail.

7. Admission requirements

To be eligible for the course requires at least 75 higher education credits in mathematics including courses corresponding to MATB15 Multivariable Analysis, 15 credits, MATB16 Linear Analysis, 7,5 credits and MATC11/MATM12 Analytic functions, 15 credits.

8. Literature

According to a list established by the department, available at least five weeks before the start of the course. See the web-page for Mathematics NF.

9. Further information

The course cannot be credited as part of a degree along with MAT243 Fourier Analysis, 5 credits or MATB12 Fourier Analysis, 7,5 credits.

10. Registration number

N 2012/25