DEPARTMENT OF MATHEMATICAL SCIENCES

UNIVERSITY OF
GOTHENBURG

NFMV013   The Hardy--Littlewood Circle Method, 7.5 credits

Hardy--Littlewoods cirkelmetod, 7,5 högskolepoäng

Third-cycle level / Forskarnivå

Confirmation

This syllabus was confirmed by the Department of Mathematical Sciences on 2020-10-06, and is valid from Autumn semester 2020.

Responsible Department
Department of Mathematical Sciences, Faculty of Science

Entry requirements

The student should have knowledge of elementary number theory and basic analysis

Learning outcomes

At the end of the course, the student will have acquired an understanding of the Hardy--Littlewood circle method, as well as knowledge concerning several of its key applications.

Course content

The aim of this course is to give an introduction to the Hardy--Littlewood circle method, its history and various applications. Some of the topics which will be covered are: the circle method as applied to Waring's problem; Goldbach's conjecture and other problems involving primes; Diophantine inequalities; Vinogradov's mean value theorem and connections to harmonic analysis.

Types of instruction

Lectures.

Language of instruction
The course is given in English.

Grades

The grade Pass (G) or Fail (U) is given in this course.

Types of assessment

For assessment students will be asked to present a paper of their choice on a related topic, agreed in advance with the lecturer.

Course evaluation

The course evaluation is carried out together with the Ph.D. students at the end of the course, and is followed by an individual, anonymous survey. The results and possible changes in the course will be shared with the students who participated in the evaluation and to those who are beginning the course.