MA221 Aug. 3:0

Analysis I

Instructor

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Teaching Assistant

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Department: Mathematics

Course Time: Tue., Thu., 2 - 3:30 PM

Lecture venue: Lecture Hall LH-4 in Mathematics Building

Detailed Course Page: http://www.math.iisc.ac.in/~khare/teaching.html

Announcements

Brief description of the course

This is a first course in mathematical analysis. It comprehensively studies the real number system, as well as functions on real numbers, including differential and integral calculus of one- and several- variables. The course is a core course offered by the Mathematics department for first-year Integrated PhD students, and is regularly taken (including in August 2018) by PhD students of other departments as well, including from Engineering.

Prerequisites

Familiarity with basic set theory and proof techniques.

Syllabus

Most of the book "Principles of Mathematical Analysis" by Walter Rudin. This includes: Construction of real numbers and Euclidean space, Basic properties of metric spaces, Sequences and series of real numbers and vectors, Continuous functions, Differentiation and integration in one variable, Sequences and series of functions, Differentiation and integration in several variables.

Course outcomes

Proficiency in (a) dealing with functions of one and several variables, including integration and differentiation of the same, (b) A working knowledge of metric spaces and continuous functions defined on the same, (c) on a broader level, a rigorous mindset towards problem solving, including linear reasoning.

Grading policy

20% Homework, 30% Midterm, 50% final

Assignments

There were seven homework assignments throughout the course. These can be found at the teaching website (link provided above).

Resources