

42001 Introduction to Analysis I (3)

Knowledge

Student should understand the concept of real numbers, limit, convergence, and completeness of the real numbers, Cauchy sequences, continuity, differentiation and Riemann integration of functions on the real line.

Comprehension

Students should understand the definitions, statements and proofs of main facts about sequences and their limits as well as real valued functions their continuity, differentiation and integration.

Application

The general theory covered in this course is useful and provide the base for study of all further advanced MATH classes. It is also required in economics, engineering, finance, natural and social sciences.

Analysis

Students should understand the connections between sequences of real numbers, limits, derivatives, and integrals. Should be able solve theoretical problems related to the above notions.

Synthesis

Students should be able to use their knowledge of the above topics to provide proves of basic classical facts in analysis be able to construct example or counterexamples to questions about sequences or real numbers as well as continuity/differentiability/integrability of real valued functions

Evaluation

Students should be able to determine appropriate techniques and knowledge necessary to solve mathematical or applied problems involving basic knowledge of sequences and functions of real variables.

Class Activities

Lecture/discussion of appropriate topics in Analysis; weekly home works, including theoretical problems which can be worked out individually or in groups; and exams.

Out of class Activities

Reading and studying the text; daily homework problems from the text/lecture notes; writing assignments on concepts covered in class.