SYLLABUS DEL CORSO

Analisi Matematica

1920-1-E3101Q100

Aims

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Contents

Real numbers. Sequences and infinite series. Differential and integral calculus in one variable.

Detailed program

1 Real numbers; least upper bound and greatest lower bound; inequalities.

2 Sequences and their limits. Existence of the limit of a monotonic sequence

3 Infinite series

4 Functions: injective, bijective, invertible. Elementary graphs. Inverse functions.

5 Limits of functions of one real variable. Asymptotes

6 The derivative and its geometric meaning. Theorems on differentiable functions

(Rolle, Cauchy, Lagrange)

7 L'Hôpital's theorem and Taylor's Formula. Convex functions.

8 Riemann integral. The fundamental theorem of calculus; calculation of some

antiderivatives.

7 Teorema di L'Hôpital e formula di Taylor: funzioni convesse.

8 Integrali di Riemann. Teorema fondamentale del calcolo e calcolo di primitive.

Prerequisites

Elementary algebra: symbolic algebra, equations and inequations of first and second degree; elementary trigonometry; logarithms and exponentials.

Teaching form

Lectures and recitation. The course is taught in Italian.

Textbook and teaching resource

G. Anichini, G. Conti. Analisi Matematica 1, Pearson.

Semester

First semester

Assessment method

Examination type: written examination (oral examination optional)

<u>Written part</u>: maximum mark 30/30. The written part is divided in two:

<u>first part</u>: 8 multiple choice questions (simple theoretical and practical exercises). Each answer: 1.5 points, if correct, -0.5 points, if wrong, 0 points, if not given.

<u>scond part</u>: two exercises, together with a theoretical question (the student is asked to provide, for instance, definitions, statements of theorems, examples).

If the total score of the first part is less than 7, the second part is not corrected and the student must repeat the written part of the exam.

The final mark of the written part is obtained by adding the mark of the first and the second part.

If the mark of the written part is more than, or equal to 18, the student can conclude the exam with the mark of the written part, without undergoing an oral exam, or, else, undergo an oral examination.

The fist-year students can split the written part in two.

Oral part: If the mark of the written part is more than, or equal to 18, the student may as well decide to undergo the oral exam

(this choice must be communicated in due time)

The final mark can be greater, equal or lower than the mark of the written part.

Office hours

By appointment