אוניברסיטת
בן-גוריון בנגב

The Department of Mathematics
2017–18–B term

Course Name Infinitesimal Calculus 2

Course Number 201.1.0021

Course web page
https://www.math.bgu.ac.il//en/teaching/spring2018/courses/
infinitesimal-calculus-2

Office Hours https://www.math.bgu.ac.il/en/teaching/hours

Abstract

Requirements and grading[1]

Course topics

1. The Riemann integral: Riemann sums, the fundamental theorem of calculus. Methods for computing integrals (integration by parts, substitution, partial fractions). Improper integrals and application to series. Numerical integration. Stirling's formula and additional applications time permitting.

2. Uniform and pointwise convergence. Cauchy's criterion and the Weierstrass M-test. Power series. Taylor series, analytic and non-analytic functions. Convolutions, approximate identities and the Weierstrass approximation theorem. Additional applications time permitting.

3. A review of vectors in R^n and linear maps. The Euclidean norm and the Cauchy-Schwarz inequality. Basic topological notions in R^n. Continuous functions of several variables. Curves in R^n, arc-length. Partial and directional derivatives, differentiability and C^1 functions. The chain rule. The gradient. Implicit functions and Lagrange multipliers. Extrema in bounded domains.

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[1]Information may change during the first two weeks of the term. Please consult the webpage for updates