

The Department of Mathematics

2023–24–A term

Course Name Basic Concepts in Modern Analysis

Course Number 201.2.0351

Course web page

<https://www.math.bgu.ac.il/en/teaching/fall2024/courses/basic-concepts-in-modern-analysis>

Lecturer Prof. Victor Vinnikov, <vinnikov@bgu.ac.il>, Office 103

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

Abstract

Requirements and grading¹

Course topics

Banach spaces and Hilbert spaces. Basic properties of Hilbert spaces. Topological vector spaces. Banach-Steinhaus theorem; open mapping theorem and closed graph theorem. Hahn-Banach theorem. Duality. Measures on locally compact spaces; the dual of $C(X)$. Weak and weak-* topologies; Banach-Alaoglu theorem. Convexity and the Krein-Milman theorem. The Stone-Weierstrass theorem. Compact operators on Hilbert space. Introduction to Banach algebras and Gelfand theory. Additional topics as time permits.

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