

The Department of Mathematics

2016–17–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/fall2016/courses/basic-concepts-in-modern-analysis>

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

Abstract

Requirements and grading¹

This course will cover the fundamentals of Functional Analysis, including Hilbert spaces, Banach spaces, and operators between such spaces.

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