

## The Department of Mathematics

2020-21-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/fall2021/courses/basic-concepts-in-moder

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

## **Abstract**

## Requirements and grading<sup>1</sup>

## **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.

<sup>&</sup>lt;sup>1</sup>Information may change during the first two weeks of the term. Please consult the webpage for updates