

# The Department of Mathematics

2024–25–A term

**Course Name** Fundamentals of Measure Theory

**Course Number** 201.1.0081

**Course web page**

<https://www.math.bgu.ac.il/en/teaching/fall2025/courses/fundamentals-of-measure>

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

## Abstract

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

## Course topics

Algebras and sigma-algebras of subsets, the extension theorem and construction of Lebesgue's measure on the line, general measure spaces, measurable functions and their distribution functions, integration theory, convergence theorems (Egorov's, relations between convergence in measure and a.e. convergence), the spaces  $L_1$  and  $L_2$  and their completeness, signed measures, the Radon-Nikodym theorem, measures in product spaces and Fubini's theorem.

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