

## The Department of Mathematics

2023–24–A term

**Course Name** Probability 1 for statisticians

**Course Number** 201.1.9921

**Course web page**

<https://www.math.bgu.ac.il/en/teaching/fall2024/courses/prob1-statistics>

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

### Abstract

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

#### Course topics

Basic combinatorics

- Sample space and events. Probability mass function
- Conditional probability. Law of total probability. Bayes? formula
- Independence
- Useful discrete distributions: uniform, binomial, geometric, Poisson, hypergeometric, negative binomial.
- Expectation, variance, median, percentile
- Functions of a random variable
- Two dimensional distributions: joint distribution, marginal distribution, covariance, conditioning on marginals
- Markov, Chebychev and Jensen inequalities
- Normal distribution

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



- Sequences of random variables: law of large numbers and central limit theorem