

## The Department of Mathematics

2019–20–A term

**Course Name** Discrete Mathematics for Communication Engineering

**Course Number** 201.1.6201

**Course web page**

<https://www.math.bgu.ac.il/en/teaching/fall2020/courses/discrete-mathematics-fo>

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

### Abstract

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

### Course topics

Prerequisites: 20119531 Linear Algebra

#### Brief syllabus

1. Operations over sets, logical notation, relations.
2. Enumeration of combinatorial objects: integer numbers, functions, main principles of combinatorics.
3. Elementary combinatorics: ordered and unordered sets and multisets, binomial and multinomial coefficients.
4. Principle of inclusion and exclusion, Euler function.
5. Graphs: representation and isomorphism of graphs, valency, paths and cycles.
6. Recursion and generating functions: recursive definitions, usual and exponential generating functions, linear recurrent relations with constant coefficients.
7. (Optional) Modular arithmetics: congruences of integer numbers,  $\mathbb{Z}_m$ , invertible elements in  $\mathbb{Z}_m$ .

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