

# The Department of Mathematics

2024–25–B term

**Course Name** Introduction to Complex Analysis

**Course Number** 201.1.0071

**Course web page**

<https://math.bgu.ac.il/en/teaching/spring2025/courses/introduction-to-complex-a>

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

## Abstract

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

## Course topics

- .1 Complex numbers, open sets in the plane.
- .2 Continuity of functions of a complex variable
- .3 Derivative at a point and Cauchy–Riemann equations
- .4 Analytic functions; example of power series and elementary functions
- .5 Cauchy’s theorem and applications.
- .6 Cauchy’s formula and power series expansions
- .7 Morera’s theorem
- .8 Existence of a logarithm and of a square root
- .9 Liouville’s theorem and the fundamental theorem of algebra
- .10 Laurent series and classification of isolated singular points. The residue theorem
- .11 Harmonic functions

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



- .12 Schwarz' lemma and applications
- .13 Some ideas on conformal mappings
- .14 Computations of integrals