

## The Department of Mathematics

2019–20–B term

**Course Name** Introduction to Complex Analysis

**Course Number** 201.1.0071

**Course web page**

<https://www.math.bgu.ac.il/en/teaching/spring2020/courses/introduction-to-complex-analysis>

**Office Hours** <https://www.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