

# The Department of Mathematics

2023–24–A term

**Course Name** Partial Differential Equations For Biotechnology

**Course Number** 201.1.9591

**Course web page**

<https://www.math.bgu.ac.il/en/teaching/fall2024/courses/partial-differential-eq>

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

## Abstract

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

## Course topics

- .1 Classification of linear Partial Differential Equations of order  $n$ , canonical form.
- .2 Fourier series (definition, Fourier theorem, odd and even periodic extensions, derivative, uniform convergence).
- .3 Examples: Heat equation (Dirichlet's and Newman's problems), Wave equation (mixed type problem), Potential equation on a rectangle.
- .4 Superposition of solutions, non-homogeneous equation.
- .5 Infinite and semi-infinite Heat equation: Fourier integral, Green's function. Duhamel's principle.
- .6 Infinite and semi-infinite Wave equation: D'Alembert's solution.
- .7 Potential equation on the disc: Poisson's formula and solution as series.

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