

The Department of Mathematics

2024–25–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/fall2025/courses/partial-differential-eq>

Lecturer Prof. Alexander Ukhlov, <ukhlov@bgu.ac.il>, Office 305

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

Abstract

Requirements and grading¹

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.

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