The Department of Mathematics

2021–22–B term

Course Name Linear algebra 2

Course Number 201.1.1221

Course web page
   https://www.math.bgu.ac.il//en/teaching/spring2022/courses/
   linear-algebra-2

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

Abstract

Requirements and grading[1]

Course topics

- Rings. Ring of polynomials and its ideal structure. The prime factorization of a polynomial. Lagrange interpolation.

- Eigenvalues and eigenvectors of linear operators.

- Characteristic polynomial and Cayley-Hamilton theorem. The primary decomposition theorem. Diagonalization. Nilpotent operators. Jordan decomposition in small dimension Jordan decomposition in general dimension-time permitted

- Linear forms. Dual basis. Bilinear forms.

- Inner product spaces. Orthogonal bases. Projections. Adjoint linear transformation. Unitary and Hermitian operators.

- Normal operators and the spectral decomposition theorem. Singular value decomposition theorem and applications.

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