

## The Department of Mathematics

2017–18–B term

**Course Name** Linear Algebra for physics students

**Course Number** 201.1.9641

**Course web page**

<https://www.math.bgu.ac.il/en/teaching/spring2018/courses/linear-algebra-for-physics-students>

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

### Abstract

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

### Course topics

- Fields: definitions, the field of complex numbers.
- Linear equations: elementary operations, row reduction, homogeneous and inhomogeneous systems, representations of the solutions.
- Vector spaces: examples, subspaces, linear dependence, bases, dimension.
- Matrix algebra: matrix addition and multiplication, elementary operations, the inverse of a matrix, the determinant, Cramer's rule.
- Linear transformations: examples, kernel and image, matrix representation.
- Diagonalization: eigenvectors and eigenvalues, the characteristic polynomial, applications.
- Bilinear forms.
- Finite dimensional inner product spaces.
- Operators on finite dimensional inner product spaces: the adjoint, self adjoint operators, normal operators, diagonalization of normal operators.

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