

Department of Basic Sciences—Philadelphia University

Course Syllabus

Course Title	Linear Algebra 1
Course Code	250241
Semester	First/2019–2020
Lecturer	Amin Witno
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Office Hours	Sun/Tue/Thu: 11–12; Mon/Wed: 11–12
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Short Description

This module is an introduction to Linear Algebra for lower-level undergraduate students. Topics include systems of linear equations, matrix operations and inverses, determinants, euclidean and general vector spaces.

Topics by the Week

1. Systems of linear equations, the Gaussian elimination
2. Gauss-Jordan algorithm
3. Matrix operations, inverses
4. Matrix inverses using row operations
5. Linear systems and invertible matrices
6. Determinants by cofactor expansion
7. Determinants by row reductions
8. Properties of determinants, Cramer's rule
9. Vectors in 2-space and 3-space
10. Norm, dot product, distance, orthogonality
11. General vector space, linear independence
12. Coordinates and bases, change of bases
13. Row space, column space, null space
14. Rank and nullity

Recommended Textbook

The following texts and other similar titles can be accessed at the University's main library:

1. Gilbert Strang, *Linear Algebra and Its Applications*, 4th edition (2006) Cengage Learning
2. Friedberg, Insel, and Spence, *Linear Algebra*, 5th edition (2018) Pearson
3. Howard Anton, *Elementary Linear Algebra*, 11th edition (2013) Wiley

Supporting Material

There are no lecture notes. Future hand-outs and supporting materials will be posted at the URL below.

<http://www.philadelphia.edu.jo/math/witno/notes.htm>

Online Resources

The following shortcut will take you to my web homepage at the University, where you find the course syllabus, exam dates, copies of old exams, links to the above materials, and any important announcement related to the current semester.

<http://phi.witno.com>

Grade Distribution

Homework	
Quizzes	20%
Class participation	
First Exam	20%
Second Exam	20%
Final Exam	40%

Exam Dates

Exam dates, once determined, will be posted online at the homepage as well as at the University student-portal page.

Homework Sets

Homework problem sets with selected answers can be downloaded also from the above homepage.