

## Department of Basic Sciences—Philadelphia University

### Course Syllabus

Course Title	Linear Algebra 2
Course Code	250341
Semester	Second/2018–2019
Lecturer	Amin Witno
Office Room	403 Nursing Faculty Building
Office Hours	Sun/Tue/Thu: 10–11; Mon/Wed: 11–12
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### Short Description

This module is a second course in theoretical Linear Algebra for upper-level undergraduate students. Topics include vector spaces, linear dependence, matrix transformations, diagonalization, inner product spaces, general linear transformations, and selected applications.

### Topics by the Week

1. Vector spaces, subspaces
2. Linear combinations, linear dependence
3. Bases, dimension, change of basis
4. Row space, column space, null space
5. Rank, nullity, the fundamental matrix spaces
6. Matrix transformations in  $R^2$  and  $R^3$
7. Properties of matrix transformations
8. Eigenvalues and eigenvectors
9. Diagonalization
10. Inner product spaces, angle and orthogonality
11. Gram-Schmidt process, QR-decomposition
12. General linear transformations
13. Compositions and inverse transformation, isomorphism
14. Matrices for general linear transformations, similarity

## 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.