



MATH 203 section 006, Fall 2019

LINEAR ALGEBRA

F, 8:30-11:10 am, Krug Hall 5

Instructor: Sarah Khankan, Ph.D.

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Office: Exploratory Hall 4219

Office Hours: T 10:30-11:30 and F 11:15-12

Credit Hours: 3

Text(s): Linear Algebra and Its Applications, by David C. Lay, *5th Edition*, Pearson 2016

Prerequisites: Math 114 - Analytic Geometry and Calculus II

Broad purpose of the course: Systems of linear equations, linear independence, linear transformations, inverse of a matrix, determinants, vector spaces, eigenvalues, eigenvectors, and orthogonalization.

Disability statement: If you are a student with a disability and you need academic accommodations, please see me and contact the Office of Disability Resources at 703.993.2474. All academic accommodations must be arranged through that office.

Tutoring Center: The Math Tutoring Center is located in the Johnson Center Room 344. Help is available on a walk-in basis. For hours of operation see <http://math.gmu.edu/tutor-center.php> University Honor Code: You are expected to follow the GMU Honor Code <http://oai.gmu.edu/the-mason-honor-code/>.

Exams:

- Exam 1: 10/04/2019
- Exam 2: 11/01/2019
- Final Exam: 12/06/2019 (Subject to change)

Grade Distribution:

Quizzes	20%
Exam 1	25%
Exam 2	25%
Final Exam	30%

Homework: Homework will be assigned at the end of each class. Completing the homework assignment is the minimum of work you should be doing outside of class. Homework will not be collected, but completing it is essential to passing the course. **Reading the sections of the text related to the problems will always be part of the homework assignment.** I will start the lecture assuming you read the corresponding sections before class.

Weekly Quizzes: 15 minutes. Similar to practice problems.

Course Policies:

- Exams are closed book, closed notes.
- No makeup exams will be given.
- Attendance is expected.
- Students are responsible for all missed work, regardless of the reason for absence. It is also the absentee's responsibility to get all missing notes or materials.

Tentative Course Outline:

The weekly coverage might change as it depends on the progress of the class.

Week	Content	Sections covered
1 (08/30)	<ul style="list-style-type: none"> • Systems of Linear Equations • Row Reduction and Echelon Form 	1.1, 1.2
2 (9/06)	<ul style="list-style-type: none"> • Vector Equations • The Matrix Equation $Ax=b$ • Solutions Sets of Linear Systems 	1.3, 1.4, 1.5
3 (09/13)	<ul style="list-style-type: none"> • Linear Independence • Introduction to Linear Transformations • The Matrix of a Linear Transformation 	1.7, 1.8, 1.9
4 (09/20)	<ul style="list-style-type: none"> • Matrix Operations • The Inverse of a Matrix 	2.1, 2.2
5 (09/27)	<ul style="list-style-type: none"> • Characterizations of Invertible Matrices • REVIEW 	2.3
6 (10/04)	<ul style="list-style-type: none"> • EXAM 1 • Introduction to Determinants • Properties of Determinants 	3.1, 3.2
7 (10/11)	<ul style="list-style-type: none"> • Vector Spaces and Subspaces • Null Spaces, Column Spaces, and Linear Transformations • Linearly Independent Sets; Bases 	4.1, 4.2, 4.3
8 (10/18)	<ul style="list-style-type: none"> • Coordinate Systems • The Dimension of a Vector Space • Rank 	4.4, 4.5, 4.6
9 (10/25)	<ul style="list-style-type: none"> • Change of Basis • REVIEW 	4.7
10 (11/01)	<ul style="list-style-type: none"> • EXAM 2 • Eigenvectors and Eigenvalues 	5.1
11 (11/08)	<ul style="list-style-type: none"> • The Characteristic Equation • Diagonalization 	5.2, 5.3
12 (11/15)	<ul style="list-style-type: none"> • Inner Product, Length, and Orthogonality • Orthogonal Sets • Orthogonal Projections 	6.1, 6.2, 6.3
13 (11/22)	<ul style="list-style-type: none"> • The Gram-Schmidt Process • REVIEW 	6.4
14 (11/29)	<ul style="list-style-type: none"> • Thanksgiving break 	
15 (12/06)	<ul style="list-style-type: none"> • FINAL EXAM (subject to change) 	