Linear Algebra

MAT 210 – Wesleyan College

Syllabus

Summer 2022, July 18 - August 19

Professor Contact Information

Professor: TBA

Office Hours: by appointment

Contact Information: TBA

Text/ISBN: *Linear Algebra and Its Applications*, 5th Edition, David C. Lay. ISBN: 9780321982384
*You will need to purchase an access code for MyMathLab. This comes with an e-book, so it is optional to purchase the physical textbook.

Policies and Procedures

Course Goals

To introduce the elements of linear algebra. To apply the theory of matrices to solve appropriate problems, including systems of linear equations.

Prerequisites

MAT 205 Calculus I

Credit Hours

3

Participation and Grading

Your grade in this course will be determined by your performance in the following categories:

Assignments	**Percentage**
Online Homework	15%
Written Assignments	10%
Exams	50%
Final Exam	25%
Total	**100%**

Grading Scale:
The grading scale in the class will be as follows:

A=90-100%
B=80-89%
C=70-79%
D=60-69%
F=59% And Below

You may track your running point total throughout the term via our course site. Please be aware, however, that the course grade you see in the site will reflect only assignments and activities you have already completed and that your professor has graded.

Academic Integrity
Wesleyan's College expects student to show integrity in all of their work. Cheating, plagiarism, unauthorized collaboration, inventing or falsifying information, turning in work for more than one class without authorization, or helping someone else are all violations of the Honor Code and are not tolerated. Any of these forms of cheating will not be tolerated and will be grounds for a grade of zero on the exam or assignment and a grade of F for the course, in addition to any penalties imposed by the Provost.

Potential Changes to Course Schedule
The following week-to-week schedule is a general plan for the course. Deviations may be necessary and will be announced in advance via announcement and/or e-mail. Students should check their course site announcements and emails at least once every twenty-four hours throughout the term to watch for updates regarding this course.

Course Schedule

This course schedule includes an overview of our key deadlines and week-to-week learning goals and activities.

Week 1

Chapter 1:
Section 1.1 – Systems of Linear Equations
Section 1.2 – Row Reduction and Echelon Forms
Section 1.3 – Vector Equations
Section 1.4 – The Matrix Equation $A\boldsymbol{x} = \boldsymbol{b}$
Section 1.5 – Solution Sets of Linear Systems
Section 1.7 – Linear Independence
Section 1.8 – Introduction to Linear Transformations
Section 1.9 – The Matrix of a Linear Transformation

Week 2

Chapter 2:

Section 2.1 – Matrix Operations
Section 2.2 – The Inverse of a Matrix
Section 2.3 – Characteristics of Invertible Matrices
End of Exam #1 Material

Section 2.5 – Matrix Factorizations
Section 2.8 – Subspaces of $\mathbb{R}^n$
Section 2.9 – Dimension and Rank
EXAM #1 (Ch. 1 & Sections 2.1 – 2.3)

Week 3

Chapter 3
Section 3.1 – Introduction to Determinants
Section 3.2 – Properties of Determinants
Section 3.3 – Cramer's Rule, Area, and Linear Transformations

Chapter 4
Section 4.1 – Vector Spaces and Subspaces
Section 4.2 – Null Spaces, Column Spaces, and Linear Transformations
Section 4.3 – Linearly Independent Sets; Bases
Section 4.5 – The Dimensions of a Vector Space
Section 4.6 – Rank
Section 4.7 – Change of Bases

Week 4

Chapter 5
Section 5.1 – Eigenvectors and Eigenvalues
Section 5.2 – The Characteristic Equation
Section 5.3 – Diagonalization
End of Exam #2 Material

Section 5.4 – Eigenvectors and Linear Transformations
Section 5.5 – Complex Eigenvalues
EXAM #2 (2.5, 2.8 – 2.9, Ch. 3, 4.1 –4.3, 4.5 - 4.7, 5.1 – 5.3)

Week 5

Chapter 6
Section 6.1 – Inner Product, Length, & Orthogonality Section 6.2 – Orthogonal Sets
Section 6.3 – Orthogonal Projections Section 6.4 – The Gram-Schmidt Process

FINAL EXAM (5.4, 5.5, Ch. 6 & Comprehensive)

Civility in the Academic Community

Students, faculty, and staff are expected to treat one another with respect in all interactions both during class meetings and on the Moodle course site. Rude, disruptive and/or disrespectful behaviors as determined by a faculty member interfere with other students' rights and with the professor's ability to teach. Therefore, any student exhibiting unacceptable behaviors during a class meeting or Moodle collaborative activity will be asked to leave and will be counted absent for that class period or activity. Failure to cooperate with this process will result in disciplinary action that may include withdrawal from the class or dismissal from the College. Violations will be reported to the Provost.

Disabilities Statement

Wesleyan College is committed to equal education, full participation and access to facilities for all students. Any student who requires reasonable academic accommodations, use of auxiliary aids or facility access for a class must first register with Disability Resources by contacting Jill Amos, Director of Disability and Advocacy Services, jamos@wesleyancollege.edu or (478) 757-5219. If reasonable accommodations are established, students should request Accommodation Letters from Disability Resources then schedule an appointment to meet with the professor to determine how the accommodations will be implemented for each class as early in the semester as possible. Accommodations require advance notice to implement and will not be retroactively administered for the semester. Accommodations that decrease the integrity of a course will not be approved.

Privacy in Teaching & Learning Spaces

In order to promote an environment in which ideas may be freely expressed, the interior offices; in-person and virtual classrooms; and Moodle course sites at Wesleyan are private spaces. The unauthorized creation of photographic images, audio recordings, or video recordings of students or faculty in these spaces is considered to be disruptive behavior which may result in a student's removal from class according to the professor's discretion. The distribution of unauthorized images or recordings, or of class meeting recordings shared by a professor for instructional purposes, without the express written permission of the College is strictly prohibited and is subject to disciplinary action by the Provost of the College.