Linear Algebra

MAT 210 – Wesleyan College

Syllabus

Summer 2024, May 13 - June 14

Professor Contact Information

Professor: TBA

Office Hours: by appointment

Contact Information: TBA

> **Text/ISBN:** *Linear Algebra and Its Applications*, 6th Edition, David C. Lay. ISBN: 9780135851159
> *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
Each week, you are required to watch the videos covering each section and complete the homework assignment specific to that section. MyMathLab will be integrated with Moodle so that you can access each homework in Moodle The cost for MyMathLab is about $79.99 or more, but it comes with a copy of the e-textbook. The homework assignments will be graded for correctness.

Each week (except for Week 5), you will have two quizzes to complete. On week 5 there will just be one quiz. The quizzes will be posted on Moodle and graded for correctness. You will work out your solutions on blank printer paper. You must clearly label each problem and it is preferred that you work each problem on a separate sheet of paper. Once you have finished with the quiz, you will upload your solutions as a single PDF to the appropriate place

on Moodle. The quizzes are due by the end of the week (Sunday night). Solutions will be posted after the due date so that you can use the solutions to prepare for the exams.

There will be two live Q&A meetings during the semester. These will happen in week 2 and week 4 and will be focused on answering questions about the material in preparation for the exams. Attendance at both meetings is expected and will determine your participation grade. If you are unable to attend, then a makeup assignment will be available so that you can still receive participation credit.

At the end of weeks 2 and 4, there will be an exam covering the previous two weeks' material. The problems on the exams will be similar to the ones given on the quizzes and on homework, so make sure you thoroughly understand all assignments before beginning each exam. At the end of week 5, there will be a cumulative final exam.

All exams will be graded based on accuracy. Similar to the quizzes, you will work out each problem on printer paper and upload to Moodle as a single PDF. Be sure to provide thorough justification of each solution so that partial credit can be applied if necessary. Failure to justify each answer appropriately will result in no credit. Exam 1 and Exam 2 will become available at the end of the week (Sunday night) and you will have 24 hours to take it. The Final Exam will open on Thursday night of Week 5 and is due by Friday night. For each exam you will be limited to 2.5 hours to complete it and upload your solution. Please note that your screen will be locked and you will not be able to access outside resources while taking the exams.

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

Assignments	Percentage
Participation (Q&A)	5%
Homework (MyMathLab)	10%
Quizzes (Top 8 out of 9)	20%
Exam 1 (Weeks 1 and 2)	20%
Exam 2 (Weeks 3 and 4)	20%
Final Exam (Cumulative)	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 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.

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.

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

Week	Section
1	1.1: Systems of Linear Equations
	1.2: Row Reduction and Echelon Forms
	1.3: Vector Equations
	1.4: The Matrix Equation Ax = b
	1.5: Solution Sets of Linear Systems
	1.7: Linear Independence
	1.8: Introduction to Linear Transformations
	1.9: The Matrix of a Linear Transformation
2	2.1: Matrix Operations
	2.2: The Inverse of a Matrix
	2.3: Characteristics of Invertible Matrices
	2.5: Matrix Factorizations
	2.8: Subspaces of R^n
	2.9: Dimension and Rank
	3.1: Introduction to Determinants
	3.2: Properties of Determinants
	3.3: Cramer's Rule, Area, and Linear Transformations
	Exam 1 (Weeks 1 - 2)
3	4.1: Vector Spaces and Subspaces
	4.2: Null Spaces, Column Spaces, and Linear Transformations
	4.3: Linearly Independent Sets; Bases
	4.5: The Dimensions of a Vector Space
	4.6: Rank
	4.7: Change of Bases
4	5.1: Eigenvectors and Eigenvalues
	5.2: The Characteristic Equation
	5.3: Diagonalization
	5.4: Eigenvectors and Linear Transformations
	5.5: Complex Eigenvalues
	Exam 2 (Weeks 3 - 4)
5	6.1: Inner Product, Length, & Orthogonality
	6.2: Orthogonal Sets
	6.3: Orthogonal Projections
	6.4: The Gram-Schmidt Process
	Final Exam (Cumulative)