Math 2210Q Fall 2024

Syllabus

Math 2210Q - Linear Algebra
Fall Semester 2024
University of Connecticut

Overview

Linear Algebra is a foundational subject in mathematics which is essential to a wide range of applications ranging from population genetics to neural networks. In this course we will learn the central ideas of linear algebra including systems of linear equations, vector spaces and linear transformations, orthogonal geometry, eigenvalues and eigenvectors.

Instructor

Jeremy Teitelbaum
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Math Department Page
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Textbook

Linear Algebra and its Applications, 6th Edition by Steven Lay, Judi McDonald, and David Lay.

We will be making use of the Pearson MyLab online resources that accompany this text, including the online homework system.

Time and Place

August 26, 2024 - December 6, 2024
Tuesdays and Thursdays 9:30AM-10:45AM
Monteith 319

Assessments

Grades in this course will be determined as follows.

Online Homework: 15%
In-class quizzes (roughly weekly): 10%
Two midterm exams (20% each). These are *tentatively* scheduled for 10/1 and 11/5.
A final exam (35%). This will take place at the regularly scheduled time, TBD.

I will not offer make-ups for quizzes, but I will drop the lowest two scores from consideration.

Disclaimer

The instructor reserves the right to modify or adapt this syllabus to account for disruptions due to weather or other unexpected circumstances.

University Policies

Students with disabilities should work with the Center for Students with Disabilities to request academic accommodations. The CSD is located in Wilbur Cross, Room 204 and can be reached at (860) 486-2020 or at csd@uconn.edu. Detailed information regarding the process to request accommodations is available on the CSD website at www.csd.uconn.edu.

Students are bound by the university's policies on academic misconduct. Academic misconduct is dishonest or unethical academic behavior that includes, but is not limited to, misrepresenting mastery in an academic area (e.g., cheating), failing to properly credit information, research, or ideas to their rightful originators or representing such information, research, or ideas as your own (e.g., plagiarism).

Students, faculty, and staff are bound by the university's policy against discrimination, harassment, and related interpersonal violence.

Math 2210 Schedule

Table 1: 2210 Class Schedule

Date	Sections	Topics	
8/27	1.1-1.2	Intro to Linear Algebra, systems of equations	
8/29	1.3	Vector equations	
9/3	1.4-1.5	Matrix equations; solution sets	
9/5	1.7	Linear independence	
9/10	1.8-1.9	Linear transformations and the associated matrix	
9/12	2.1	Matrix operations	
9/17	2.2-2.3	Inverses and invertible matrices	
9/19	3.1-3.2	Determinants	
9/24	3.3-4.1	Cramer's Rule, Volumes; Vector Spaces and Subspaces	
9/26		Exam Review	
10/1		First Exam	
10/3		No class (Rosh Hashanah)	
10/8	4.2	Null space, column space	
10/10	4.3-4.4	Bases and linear independence; coordinates	
10/15	4.5	Dimension	
10/17	4.6-4.7	Rank, change of basis	
10/22	5.1	Eigenvectors, eigenvalues	
10/24	5.2-5.3	Characteristic polynomials, diagonalization	
10/29	5.4	Eigenvector and linear transformations	
10/31		Review	
11/5		Exam 2	
11/7	6.1-6.2	Inner products, orthogonality	
11/12	6.3	Orthogonal Projection	
11/14	6.4-6.5	Gram-Schmidt, least squares	
11/19	7.1	Diagonalization of symmetric matrices	
11/21	7.2-7.3	Quadratic forms, constrained optimization	
11/26-11/28		No Class; Thanksgiving break	
12/3		Singular Value Decomposition	
12/5		Review/Catch-up	
12/9-12/11		Finals Period	Final Exam TBD
12/12		Reading Day	
12/13-12/15		Finals Period resumes	Final Exam TBD

See the mylab site for the course for the assigned homework problems.