Fall 2024
MATH D002B.13 CRN:27518
Linear Algebra
MW 4:00 — 6:15 S16

Instructor: Nadiia Turbai
Email: turbainadiia@fhda.edu

Office Hours: M 3:00 — 4:00 (S55) or email me for appointment

Textbook & Required Materials:
Linear Algebra and Its Applications, 5th edition, by D. Lay, S. Lay, and J. McDonald (2015), Pearson. ISBN: 978-0321982384
Graphing Calculator: TI-83/TI-83+/TI-84/TI-84+ or any app that works with matrices

Prerequisite: Mathematics 1D with a grade of C or better.
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.

Course Description:
- Solve and analyze systems of linear equations using matrices and matrix theory.
- Investigate special matrices and matrix operations including powers and factorization.
- Develop understanding and use of n-dimensional vectors and vector operations.
- Define and investigate vector spaces and vector sub-spaces and find their bases and dimensions.
- Establish understanding of linear transformations and their geometry and find their matrix representation.
- Define eigenvalues and eigenvectors and use them to diagonalize square matrices and solve related problems.
- Utilize methods of linear algebra to solve application problems selected from engineering, science, and related fields.

Student Learning Outcomes:
- Construct and evaluate linear systems/models to solve application problems.
- Solve problems by deciding upon and applying appropriate algorithms/concepts from linear algebra.
- Apply theoretical principles of linear algebra to define properties of linear transformations, matrices, and vector spaces.

Drop Policy:
Attendance is integral to your success on this course. I expect you to attend all class meetings. It is always ***YOUR RESPONSIBILITY*** to drop the class if you feel like you cannot continue for any reason.

Homework:
Homework is essential in any math class. You cannot expect to pass the class without putting consistent effort into homework. Homework and recommended problems will be assigned according to our progress in class. They provide practice, help clarify ideas introduced in class or in the text and constitute a partial guide for what to expect on Quizzes and Midterms.
The deadline for homework will be **next Monday** after week it was assigned. *Show all work and explain any reasoning*. You may not submit your assignments once the deadline has passed.

Quizzes:
Seven Quizzes are proctored quizzes and will be given in the classroom on quiz days. Quiz problems are similar to homework problems and lecture examples.
In the event of absence, you will receive zero for the quiz. The lowest scores will be dropped for overall grade calculation at the end of the term.

Projects:
Project will be assigned throughout the term. These are solving real life problems using Linear algebra. Write your solutions out in full detail, as modeled in the textbook and in lectures. It's important to write up problem sets neatly, showing all work, and explaining the logic behind each step. You will be notified in advance about the format and deadline.

Exams:
We will have ***two midterm exams***, and a cumulative ***final exam***. See the calendar below for the dates.
IMPORTANT: There will be NO MAKEUPS for any of the exams. Your lowest midterm score will be replaced by the final exam proportionally if the final exam score is higher. This will also be done in case of a missed exam.
NOTE ABOUT THE FINAL EXAM: In case of an unforeseen emergency or illness due to which you cannot take the final exam, you may be given an 'Incomplete', if you supply me with sufficient proof.

Tentative Exam Schedule:
Midterm 1: October 16
Midterm 2: November 20

FINAL exam: Wednesday December 11, from 4PM to 6PM.

Grading Policy:
Course grades will be determined by homework, quizzes, Project, Midterms and Final exam. You can also earn *extra points* for participating in class activities.

1	Homework (drop 2)	18 pts
2	Quizes (drop 1)	42 pts
3	Project	10 pts
4	Midterms	80 pts
5	Final exam	50 pts
	Total	**200pts**

Grade	Percentage
A+	97%-100%
A	93%-96.9%
A-	90%-92.9%
B+	85%-89.9%
B	80%-84.9%
B-	75%-79.9%
C+	72%-74.9%
C	68%-71.9%
C-	65%-67.9%
D+	62%-64.9%
D	58%-61.9%
D-	55%-57.9%
F	Below 55%

Important Dates and Deadlines: https://www.deanza.edu/calendar/dates-and-deadlines.html

Academic Integrity:
All students are expected to exercise high levels of academic integrity throughout the quarter. You are encouraged to work together but you are expected to write up your answers independently. Any instances of cheating or plagiarism will result in disciplinary action, including getting a '0' on the assignment and reporting to the PSME dean, which may lead to dismissal from the class or the college.

Student Honesty Policy: "Students are expected to exercise academic honesty and integrity. Violations such as cheating and plagiarism will result in disciplinary action which may include recommendation for dismissal."

Course Policy:

- This class is an in-person class, and your participation is essential and expected.
- No late work will be accepted, nor credit given for late homework and assignments.
- You are responsible for keeping up with the material even if you miss class. You should practice as much as possible.
- The De Anza College catalog advises students to do at least two hours studying outside of class for each credit hour. That means you should be spending at least four and one half hours on each homework assignment (reviewing the notes, reading the textbook, doing the homework problems, watching videos related to the course material, etc.).
- Office hours are in person or on zoom by appointment. Come to office hours as much as you can and as often as you need to ask questions. I strongly believe that there is no right or wrong question and there is no smart or stupid question. All questions are welcomed in this class, and I will do my best to answer any question that you have no matter how elementary it may sound. I strongly suggest that you do not leave anything for the last minute.
- You are responsible for keeping up with important dates on the academic calendar.
- I will not discuss your grades via email for security and privacy reasons so you must consult with me (on zoom or in person) about your standing in class and your grade throughout the quarter. I strongly suggest that you do not leave anything for the last minute.

Recipe for Success:

- If you ever have any questions, ask me! You are welcome during my Office Hours, by appointment (zoom) and also you can send me email whenever you need help! Your success in my class is extremely important to me and I will do everything in my power to help you achieve your goals.
- Be an active learner, do not memorize, learn the concepts.
- When you try to solve a problem, make sure you understand what the problem is asking for. Read the question multiple times if needed.
- Do not be afraid of making mistakes. You may not be able to solve a problem on the first try and that is okay. Try again. No matter what, never, ever give up.
- Your participation is essential. Your progress depends entirely on your commitment both inside and outside the classroom. Participate in discussions and complete every homework assignment.

This syllabus is subject to change at the instructor's discretion. You will be notified in advance.

Disabled Services:
Students who have been found to be eligible for accommodation by Disability Support Services (DSS), please follow up to ensure that your accommodation has been authorized for the current quarter. If you are not registered with DSS and need accommodations, please go to http://www.deanza.edu/dss.

Fall 2024 Math 2B-13 Tentative Course Schedule

week	Date	Monday	Wednesday	Notes
1	September 23, 25	1.1 Systems of Linear Equations	1.2 Row Reduction and Echelon Forms	
2	September 30, October 2	*Quiz 1* 1.3 Vector Equations	1.4 -1.5 The Matrix Equation Ax=b	Last day to drop without W
3	October 7, 9	*Quiz 2* 1.7 Linear Independence	1.8 Introduction to Linear Transformations 1.9 The Matrix of a Linear Transformation	
4	October 14, 16	*Quiz 3* 2.1 Matrix Operations 2.2 -2.3 Inverse of a Matrix	Midterm 1 Ch1	
5	October 21, 23	*Quiz 4* 2.4Partitioned Matrices 2.5 Matrix Factorizations	3.1 -3.3 Determinants	
6	October 28, 30	*Quiz 5* 4.1 Vector Spaces and Subspaces	4.2 Null Spaces, Column Spaces, Row Spaces, and Linear Transformations	
7	November 4, 6	*Quiz 6* 4.3 Linearly Independent Sets; Bases 4.4 Coordinate Systems	4.5 The Dimension of a Vector Space 4.6 Rank 4.7 Change of Basis	
8	November 11, 13	Holiday, no class	5.1 Eigenvectors and Eigenvalues 5.2 The Characteristic Equation	Last day to drop with a W
9	November 18, 20	Midterm 2 Ch2-4	5.3 Diagonalization 5.4 Eigenvectors and Linear Transformations	
10	November 25, 27	*Quiz 7* 6.1,6.2,6.3 Inner Product, Length, and Orthogonality	6.3 Orthogonal Projections 6.4 The Gram–Schmidt Process Review	
11	December 2, 4	Review for Final	Review for Final Last day of Class	
12	December 9,11		Final Exam 4PM -- 6PM	

Student Learning Outcome(s):

• Construct and evaluate linear systems/models to solve application problems.

• Solve problems by deciding upon and applying appropriate algorithms/concepts from linear algebra.

• Apply theoretical principles of linear algebra to define properties of linear transformations, matrices and vector spaces.

Office Hours:

M	02:45 PM	03:45 PM	In-Person	S 55