# MATH 2B - Linear Algebra

## Genral Information

- **Instructor:** Maryam Adamzadeh, adamzadm@fhda.edu
- **Terms and Dates:** Summer 2024, July 1 - August 8
- **Lectures:** MTWTH 05:30 - 07:45 PM
  - **Office Hours:** Wednesday 10:00 – 11:00 AM, on Zoom
- **Textbook and Calculator:**: *A First Course in Linear Algebra* by Lyryx
  - your textbook for this class is available for free online https://lyryx.com/first-course-linear-algebra/
  - You will need a scientific calculator, and occasionally a matrix calculator, for this class. This can be a physical or an online app, such as the one at Desmos.
- **Prerequisite** Mathematics 1D or equivalent (with a grade of C or better); or a satisfactory score on the College Level Math Placement Test within the last calendar year.

## About the Course

### 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.

## Course SLO

- 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.

## Attendance Policy

Attendance in class is mandatory. Any absences or tardiness will result in lost points. it is important for students to attend the class on time and participate in all the activities in class for the learning proces. It is always **YOUR RESPONSIBILITY** to drop the class if you feel like you can't continue for any reason.

## Help

The Math, Science, and Technology Resource Center (S43) provides free online tutoring Monday – Thursday 10AM – 5PM.
See details at http://deanza.edu/studentsuccess/. You can also use the "NetTutor" for help through Canvas or attend my office hour. Email me for appointments if you want to meet at alternative times.

## Academic Integrity

All tests are allowed some notes, but your work must reflect what you know based on your own knowledge and thought. Referencing or copying another student's solutions, or searching answers online during tests are considered cheating. Violation of this policy will result in the student receiving ZERO credit for the entire assignment or test. Further action may be taken depending on the circumstance.

## Disability Notice

If you feel that you may need an accommodation based on the impact of a disability, please contact me privately to discuss your specific needs. Also, please contact Disability Support Programs & Services through https://www.deanza.edu/dsps/

for information or questions about eligibility, services, and accommodations for physical, psychological, or learning disabilities.

## Grading Policy

All grades will be posted on Canvas as soon as they become available. It is your responsibility to check Canvas at least once a week to monitor your grades for the class.

- Group Activity Handout: 15%
- Homework: 15%
- 5 Quizzes: 20%
- Midterm Exam: 20%
- Final Exam: 30%

**Total: 100%**

- $A^+$: 97 - 100%
- A: 90 - 96.99%
- $B^+$: 87 - 89.99%
- B: 83 - 86.99%
- $B^-$ : 80 - 82.99%
- $C^+$ : 77 - 79.99%
- C: 70 - 76.99%
- D: 60 – 69.99%
- F: 0 - 59.99%

## Group Activity Handout

Each week includes an in-class group activity handout, which you will complete and submit on Canvas. The problems on these handouts are very similar to the ones we discuss in class, but they are adapted from real-world examples. In the event of an absence, you will receive a zero for the in-class activity.

## Homework

Homework assignments are regularly assigned from the textbook and posted on the course Canvas. Students are encouraged to collaborate on homework, but it's essential to thoroughly understand the material by actively working through it yourself. Ensure you write up the final version of your solutions independently. Each homework assignment on Canvas will display a due date. If you need an extension due to a well-documented emergency, inform the instructor ahead of the deadline. .

## Quizzes

We will have five 20-30 minute quizzes during class typically on Thursdays. Quiz problems are similar to homework problems and lecture examples.

## Midterms and Final

We will have one midterm exam, and a cumulative final exam. There will be **NO MAKEUPS** for any of the exams.
**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', provided that you supply me with a sufficient proof.

## 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.

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**Office Hours**

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|---|---|---|---|
| Zoom | W | 10:00 AM | 11:00 AM |