MATH D002B

Linear Algebra

Summer 2026

CRN: 13842 **Days:** MTWTh **Time:** 12:30 PM – 02:45 PM **Room:** E32

Instructor: Jelena Segan

E-mail: seganjelena@fhda.edu

- The best way to contact me is through my email, seganjelena@fhda.edu

Communication Plan

- Communication between instructor and student is very important. The best way to contact me is through Canvas and email. I will respond within 24 - 48 hours on weekdays, and on Monday for emails sent over the weekend. If I don't respond in that timeframe, please email me again.
- I always send out messages and announcements through Canvas. I would recommend checking your Canvas inbox daily, and if you can, download the Canvas app on your phone. I am very approachable so if you have any questions, please ask!

Textbook & Required Materials:

Text (free): OER Linear Algebra: A First Course

Linear Algebra: A First Course

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.

Computer/smartphone to complete homework assignments.

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.

Notebook

I recommend that you work out each homework problem on paper in a notebook. Even though you won't be handing in problems (unless announced), I expect that you write out the solution to each problem in your notebook. I believe the best way to prepare for a test is to practice the skills that you will demonstrate during the test. Practice solving each problem in a clear, logical, and methodical way and you will earn more points on your test. This will also help me whenever you come to me with questions, because it allows me to see your work and offer helpful suggestions suited to your questions.

Canvas:
All class content, assignments and announcements will be on Canvas, which you can access through MyPortal. The course modules are organized by chapter.

Group Activity:

There will be required group activities. Even though the problems will be discussed in group, write up your own solutions independently.

- **Every member** of the group will be taking a role.
- Your name and your role should be written at the top of the first page.
- Work must be NEAT and ORGANIZED. Do problems IN ORDER.
- It is important for you to SHOW YOUR WORK! You are graded on the work you show to get the final answer, not just the final answer. Be sure to show your "scratch work" that goes with the problem.

Discussions: There will be weekly discussion topics posted throughout the term. Submit your work on Canvas independently. The deadline for responding to the topic will be indicated when the assignment is posted.

You may not respond to the discussion once the deadline has passed.

Quizzes:

Quizzes are a vital part of your learning process in this course and designed to help you practice the concepts discussed in class. Collaboration is fine, but each student should ensure they understand the material independently.

There will be one quiz per chapter. Your lowest quiz score will be dropped, with the remaining contributing to your final grade.

Each quiz will be done after the corresponding chapter is covered in class.

Homework:

Written sets for submission: During the term, I will send out homework and group activities sets to be discussed, written up, and submitted on Canvas or in person. Homework and group activities is essential in any math class. You cannot expect to pass the class without putting consistent effort into homework and group activities. Show all work and explain any reasoning. Submit your work on Canvas or in person independently.
You may not submit your assignments once the deadline has passed.

HW Guidelines:

The process of solving homework problems reflected in step-by-step solutions. The following are some specific criteria:

Guidelines for homework:

- Your name should be written at the top of the first page.
- Work must be NEAT and ORGANIZED. Write the questions (problems) IN ORDER. Following the format displayed on Canvas.
- It is important for you to SHOW YOUR WORK! You are graded on the work you show to get the final answer, not just the final answer. Be sure to show your "scratch work" that goes with the problem. All work you submit must be written up individually in your own words, and you shouldn't ever submit work that you wouldn't be comfortable explaining clearly to another student or to the instructor.
- Do your work underneath the assigned problem then circle your final answer.

- Submit pdf file of your homework on Canvas

  You may not submit your assignments once the deadline has passed.

Projects: Project will be assigned throughout the term. Project due date will be indicated on Canvas. Submit your work on Canvas independently.

You may not submit your assignments once the deadline has passed.

Exam Reviews: There will be final exam review assigned before exam. The purpose of the review is to aid the student in studying for the exam.

Midterm Exam: There will be one midterm exam.

Midterm exam will focus on the material covered.

Final Exam: The final exam will cover all material from throughout the term.

Grading rubric:

A	100%	to 94.5%
A-	< 94.5%	to 89.5%
B+	< 89.5%	to 86.5%
B	< 86.5%	to 83.5%
B-	< 83.5%	to 79.5%
C+	< 79.5%	to 74.5%
C	< 74.5%	to 69.5%
D+	< 69.5%	to 66.5%
D	< 66.5%	to 63.5%
D-	< 63.5%	to 59.5%
F	< 59.5%	to 0%

Grading Policy:

Homework, Quizzes, Group Activities, and Discussion	350 pts (43.75%)
Projects and Presentation	100 pts (12.50%)
Midterm	150 pts (18.75%)
Final	200 pts (25%)
Total	**800 pts**

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

De Anza Final exams schedule: https://www.deanza.edu/calendar/final-exams.html

For detailed information on Homework, Quizzes, Projects, Discussion please log into your Canvas course page.

Grade Changes
Grade changes are made only for clerical errors. I will not change grades for any other reason.

Important Notes:
There will be regular online homework, quizzes. You will have a limited amount of time to complete the quizzes, homework, and discussions.
Any late submissions are penalized at a rate of 10% per day.
No makeup quizzes will be given, even if the absence is excused. If you miss an quiz, you will receive a 0% on it.

Dropping
Students will not be automatically dropped for non-attendance. Although I do reserve the right to drop students for non-attendance, it is the student's responsibility to officially drop or withdraw from the course – if you fail to do so and your name appears on the final roster, you will receive an F for the term. Do not assume that I will drop you if you stop coming to class.

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 report 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."

Electronic Devices on Exam:
Electronic devices such as phones, ipads, calculators (electronic, mechanical, or any other type), and other devices, are also not allowed on exams. Exams are not intended to test your ability to find the answer by any means necessary. Rather, exams are supposed to test your understanding of the course material, which you will need in order to use math correctly in subsequent courses and in the real world.

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

This syllabus is subject to change at the instructor's discretion. Changes will be announced in class and on Canvas.

Recipe for Success:

- If you ever have any questions, Email me. You are welcome to send email to me whenever you need help!
- Visit the Tutoring Center.
- Form a study group.
- Watch all lectures, participate in every discussion, and complete every homework assignment.
- Read the sections to be discussed in class prior to the lecture

Topics

Introduction to Systems of Linear Equations
Gaussian Elimination and Gauss-Jordan Elimination
Applications of Systems of Linear Equations

Operations with Matrices
Properties of Matrix Operations
The Inverse of a Matrix
Elementary Matrices
Applications of Matrix Operations

The Determinant of a Matrix
Determinants and Elementary Operations
Properties of Determinants
Applications of Determinants

Vectors in n-space
Vector Spaces
Subspaces of Vector Spaces
Spanning Sets and Linear Independence
Basis and Dimension
Rank of a Matrix and Systems of Linear Equations
Coordinates and Change of Basis

Inner Product Spaces
Orthonormal Bases: Gram-Schmidt Process

Introduction to Linear Transformations
The Kernel and Range of a Linear Transformation
Matrices for Linear Transformations

Eigenvalues and Eigenvectors
Diagonalization

Symmetric Matrices and Orthogonal Diagonalization

Applications

Tentative Schedule

Week 1: Systems and Matrices

- **Introduction to Systems of Linear Equations**
- **Gaussian Elimination and Gauss-Jordan Elimination**
- **Applications of Systems of Linear Equations**
- **Quiz 1**
- **Operations with Matrices**
- **Properties of Matrix Operations**

Week 2: Matrix Inverses and Determinants

- **The Inverse of a Matrix**
- **Elementary Matrices**
- **Applications of Matrix Operations**
- **Quiz 2**
- **The Determinant of a Matrix**
- **Determinants and Elementary Operations**
- **Properties of Determinants**
- **Applications of Determinants**
- **Quiz 3**

Week 3: Vector Spaces

- **Vectors in n-space**
- **Vector Spaces**
- **Subspaces of Vector Spaces**
- **Spanning Sets and Linear Independence**

Midterm Covers Weeks 1–2 (Systems, Matrix Operations, Determinants)

Week 4: Basis and Inner Products

- **Basis and Dimension**
- **Rank of a Matrix and Systems of Linear Equations**
- **Coordinates and Change of Basis**
- **Inner Product Spaces**
- **Orthonormal Bases and the Gram-Schmidt Process**
- **Quiz 4**

Week 5: Linear Transformations

- **Introduction to Linear Transformations**
- **The Kernel and Range of a Linear Transformation**
- **Matrices for Linear Transformations**
- **Quiz 5**

Week 6: Eigenvalue and Review

- **Eigenvalues and Eigenvectors**
- **Diagonalization**
- **Symmetric Matrices and Orthogonal Diagonalization**
- **Applications**
- **Quiz 6**
- **Comprehensive Review**

Final Exam: Cumulative (All topics)

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: