MATH 194-1090 Linear Algebra

Summer 2026 (3 Units)

Instructor: Meetal Shah, Ph.D.

Class Hours: M - Th 10:00 AM - 12:05 PM in **MA250**

Office Hours: M, T 12:15 - 12:45 PM

Email: mmshah@dvc.edu

Exam I Date: Thursday, June 25, 10:00 AM – 12:05 PM in **MA250**

Exam II Date: Thursday, July 9, 10:00 AM – 12:05 PM in **MA250**

Final Exam Date: Thursday, July 23, 10:00 AM – 12:05 PM in **MA250**

Prerequisite: A grade of C or better in MATH-193 (Calculus II) or equivalent.

Textbook: *Elementary Linear Algebra*, 8th Edition, by Ron Larson (ISBN-13: 978-1-305-65800-4)

About Me:

I am a New Yorker at heart. I lived and studied on the east coast, at Rutgers and NYU. I enjoyed playing soccer, ultimate frisbee, and ping pong. An interesting fact about me is that I was a professional chess player as a teenager. After graduating with degrees in Physics and Mathematics, I worked as a software engineer and electrical engineer. I spent 7 years living in India while I completed my PhD in Mathematics, with a specialty in Functional Analysis. You can still spot me playing a game of Diablo 4 on my gaming rig in my spare time. In addition to teaching, I also consult in IT. I moved to California about 8 years ago. I live in Walnut Creek with my wife and our very cute and active kindergartener.

Calculator:

A basic scientific calculator, WITHOUT a computer algebra system (CAS) will be allowed for use on exams. A device with a computer algebra system (CAS) such as a computer program, mobile application or graphing calculator will be useful for homework problems. A free web-based CAS application is available at wolframalpha.com.

Course Description:

Introduction to linear algebra covering topics such as vector spaces, matrices, determinants, bases, inner product spaces, eigenvalues, eigenvectors, eigenspaces and linear transformations. Techniques for solving systems of equations using matrices and applications of linear transformations.

Student Learning Outcomes:

- Upon completion students will be able to:
- Find solutions to systems of equations using methods appropriate to lower division linear algebra.
- Use bases and orthonormal bases to solve problems in linear algebra.
- Find dimensions of spaces associated with matrices and linear transformations.
- Find eigenvalues and eigenvectors and use them in applications.
- Prove basic results in linear algebra using techniques such as linear independence of vectors, subspace properties, linearity, injectivity and surjectivity of functions and properties of eigenvalues and eigenvectors.

Canvas:

In addition to in class lectures and activities, we will use Canvas to distribute course content within **modules** and updated course information will be displayed from **announcements**, so be sure to setup notifications to receive them right away if using the Canvas mobile app (recommended).

Lectures notes are posted to Canvas along with additional study materials in modules.

Homework and Quizzes will be conducted via the **Webassign** website but will be integrated within Canvas, more information on Homework and Quizzes is provided below. Exam solutions will be posted to Canvas as well as a current **estimate** of each student's grade under Grades.

Grading Policy:

Grading will be determined in the following proportion of homework and exams to compute the letter grade listed below:

Component	Weight	Weighted Average	Letter Grade
Participation	5%	90 – 100%	A
Homework	20%	80 – 89%	B
Quizzes	10%	70 – 79%	C
Exam I	15%	60 – 69%	D
Exam II	15%	Below 60%	F
Final Exam	35%		
Name Coach (**extra credit**)	1%		
Office Hours (**extra credit**)	1%		

Participation:

Students can earn up to **ONE** point for participation. A maximum of **FIVE** points can be earned in this way.

Homework and Quizzes:

Homework and Quizzes will be distributed on Canvas. Canvas homework and quiz links will open into **Webassign**, where an **online access code is required** to submit them. **Do not** log into **Webassign** directly. Online access codes should be obtained via (**Do NOT buy from DVC bookstore, its more expensive!)**:

- Direct from publisher after registering for homework via Canvas (Cengage) (**Etext and Webassign only**) $55 for 4 months.

Homework:

Homework will be due **BI-WEEKLY** at the end of the day.

Quizzes:

Quizzes will be assigned approximately every week, with a total of 7 quizzes (one per chapter). Quizzes will be **TIMED** assignments approximately 30 to 60 minutes in length. Quizzes will be **due at the end of the day 11:59 PM** of the day they are due. Quizzes are **asynchronous and open book/notes**, meaning that they are not meant to be completed during class time.

Exams:

All Exams are **cumulative**. Exam I will cover topics from chapters 1 & 2. Exam II will cover topics from chapters 1 to 4. The Final Exam will include topics from chapters 1 to 7. Students may be asked to present photo ID at exams.

Exams will be **administered during regular class time IN PERSON**. Students will have **120 minutes** to complete exams. Exams are **timed and closed book/notes** but are permitted a 1-page (2-sided) **handwritten** cheat sheet.

Exams will be graded on the **Gradescope** website, after the first exam all students will be sent a link to setup their password on the Gradescope website on their insite email. **Do not** visit the Gradescope website and set up an account, all accounts will already be created via insite email ID's. After setting their password, students can view their scanned exams and see detailed test results. Physical exams will be returned in class with only scores.

Students scoring **below a 70** on Exam I or II may make-up questions up to a **maximum score of 70 for ONE of the Exams**. Students must decide which Exam they wish to make up questions from, **students may only make up questions from either Exam I OR Exam II**. Questions can be made-up over **multiple days**. The make-up question will be a different but similar question from the Exam question chosen and must be a question the student scored less than 70% of the points for that question on. Make-up questions will be available after an Exam **upon request**. One make-up attempt per question is allowed, **make-up questions will be distributed on Webassign** and there will be **no make-up questions for the Final Exam**.

Extra Credit:

Office Hours:

Students can earn **ONE** extra credit point for spending at least 15 minutes in office hours, a maximum of **ONE** extra credit point can be earned this way.

Name Coach:

Students can earn **ONE** extra credit point for recording their name via the Name Coach tab within Canvas. This recording persists through all courses at DVC.

Important Dates:

Sunday June 21: Last day to add, Last day to drop without a W

Wednesday June 17: Last day to drop with a refund

Wednesday, July 14: Last day to withdraw with a W

Thursday, June 25 Exam I in MA250

Thursday, July 9, Exam II in MA250

Thursday, July 23: Final Exam in MA250

Honor Policy:

Students caught cheating on an exam will receive a zero, the grade cannot be dropped, and the matter will be submitted to the Dean for possible disciplinary action.

Attendance:

Attendance will be taken every day, while attendance does not count towards students' grade, students that miss more than one class will find it very difficult to catch up. Additionally, any student missing more than four total classes can be dropped at the instructor's discretion.

Cell Phone Policy:

Cell phones are to be **silenced and put away** during class. It is strongly encouraged that phones are switched off. **Violations of this policy will result in students being dismissed from class for the day.**

Accessibility:

Students who require alternative formats for course materials or adaptive equipment because of a specific disability can request them through the Disability Support Services office. Students who require extended time for exams may also contact the DSS office. The High-Tech Center in LC-107 is an adaptive technology computer lab available for students with disabilities and is open Monday-Thursday from 9am-5pm, and Fridays from 9am-1pm. Please contact Carrie Million in LC-111 or at 925-685-1230 ext. 2553 for more information.

Resources:

Office Hours

Office hours are listed at the top of the syllabus, and you are encouraged to talk to me about the course.

Math and Engineering Student Center

The Math and Engineering Student Center is available in-person or online via Zoom, more information can be found from the link below. They offer individual tutoring for all students.

https://www.dvc.edu/current/student-centers/math-engineering.html

Tutoring is also available within Canvas via the NetTutor tab 24 hours a day.

Email

Students are welcome to email with questions or ask questions on homework assignments directly within Webassign. The instructor will attempt to respond within one day.

Other Students

Students are highly encouraged to discuss lecture topics and study for exams with other students.

CalcChat.com

This website by the textbook publisher has an online version of the Student Solutions Manual, as well as tutors who can help you with odd numbered exercises. They can walk you through a solution in a live chat session. Please visit the CalcChat.com website for their hours.

Tentative Schedule

Week	Dates	Topics	Chapters	Assignments or Exams
1	6/15 – 6/18	Intro. to systems of linear equations, Gaussian Elimination and Gauss-Jordan Elimination, applications, Matrix operations and properties	1.1 – 1.3, 2.1 – 2.3	HW 1.1 1.3, 2.1 – 2.3, Chapter 1 Quiz
2	6/22 – 6/25	Inverses, elementary matrices and applications, Determinants, Elementary operations, **Exam I**	2.4, 2.6, 3.1, 3.2	HW 2.4, 2.6, 3.1, 3.2, Chapter 2 Quiz, **Exam I Tuesday 6/25 (covers 1.1 – 2.6)**
3	6/29, 6/30, 7/1 **7/2 (Holiday)**	Properties of determinants, Applications of determinants, Vectors, Vector Spaces, Subspaces	3.3, 3.4, 4.1 - 4.3	HW 3.3, 3.4, 4.1 - 4.3, Chapter 3 Quiz
4	7/6 – 7/9	Span and linear independence, Basis and dimension, Rank, Coordinates and change of basis, Length and dot product in $\mathbb{R}^n$, Inner product spaces, Orthonormal bases: Gram-Schmidt process, **Exam II**	4.4 – 4.7, 5.1 - 5.3	HW 4.4 – 4.7, 5.1 - 5.3, Chapter 4 Quiz, **Exam II Tuesday 7/9 (covers 1.1 – 4.7)**
5	7/13 – 7/16	Least squares analysis, Linear transformations, Kernel and range of linear transformations, Matrices for linear transformations, Transition matrices and similarity, Applications of linear transformations	5.4, 6.1 – 6.5	HW 5.4, 6.1 – 6.5, Chapter 5 and 6 Quiz
6	7/20 – 7/23	Eigenvalues and eigenvectors, Diagonalization, Symmetric matrices and orthogonal diagonalization, Applications of eigenvalues and eigenvectors, **Final Exam**	7.1 – 7.4	HW 7.1 – 7.4, Chapter 7 Quiz, **FINAL EXAM Thursday, July 23: Final Exam in MA250 (Cumulative)**