DeAnza College

Spring 2025 MATH 2B –51Z/53Z Online

Instructor:	Linlin Zhang **Email**: zhanglinlin@fhda.edu **Canvas:** https://deanza.instructure.com/
Text:	Elementary Linear Algebra by Howard Anton 11th edition Please follow the link to download the PDF file to your computer.
Equipment:	**A Graphing Calculator is required** (We need the **Matrices** features) During lesson, you can use your phone: **TI Emulator Apps** For iPhone: GraphNCalc83 (free with ads) For Android: Graphing Calculator plus 84 83 ($2.99)
Office Hours:	**MLC 105 or Zoom TTh 3:00 – 3:30PM** Only **Zoom F 9:00- 9:45AM** https://fhda-edu.zoom.us/j/88600159580?pwd=pzwLybF4u60S9uQqfkliriMUMXxzTZ.1 Meeting ID: 886 0015 9580 Passcode: 220408

1. **Prerequisite:**

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.

2. **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.

3. **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.

3. **Drop Policy:**

Since this is an asynchronous online class, your participation is your attendance. If you don't participate in the discussion board by the end of **Sunday of the first week**, you will be dropped from the class. **It is always YOUR RESPONSIBILITY to drop** the class if you feel like you can't continue for any reason.

4. **Tutoring**

The Math, Science, and Technology Resource Center **(S43)** provides free online tutoring **Monday – Thursday 10AM – 5PM**. For more information, go to www.deanza.edu/studentsuccess/mstrc You can also use "NetTutor" link on the navigation in Canvas or attend my office hour. Email me for appointments if you want to meet at alternative time.

5. **Academic Integrity:**

Your work must reflect what you know based on your own knowledge and thought. Referencing or copying another student's solutions, or searching answer 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. Also, each incident of cheating will be reported to the Dean of the Physical Science, Mathematics and Engineering Division. Please see the De Anza College's page on Academic Integrity.

6. **Disability Support Services**

Students with disabilities needing reasonable accommodation should inform me in the beginning of the quarter. To begin the reasonable accommodations process, I will need to fill out a request form from the Disabilities Support Services (DSS). For more information, please visit the DSS office at SCSB 141, call (408) 864-8753 /(408) 864-8748 TTY, or go to www.deanza.edu/dss.

7. Grade:

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

In Class (drop 4)	14%
Homeworks (drop 1)	13%
8 Quizzes (drop 1)	7%
2 Exams	44%
Final Exam	22%
Total	100%

A: 90-100%
B: 80-89%
C: 70-79%
D: 60–69%
F: 0-59%

In Class Participation

Canvas Modules are organized by weeks. You are assigned certain sections each week. I encourage you to read the textbook on those sections; then watch my lesson videos. Even if the class is asynchronous, you should keep a schedule for yourself (like one hour each day) so you can keep up with the pacing of the class.

There will be problems assigned during the lesson videos. You need to complete those problems and post your answers to the corresponding discussion board. You will be graded by effort, not by correctness.

You may also ask questions that you may have on the discussion board, and response to other students' questions when possible. Four lowest scores will be dropped for overall grade calculation at the end of the term.

Homework:

Homework assignments are assigned from **textbook** or MyOpenMath test bank. You need to submit your answers to **MyOpenMath** (embedded in **Canvas**). Most time I won't be collecting your work, but make sure to work out the problems on your own paper, and provide work I ask you to.

Late Work Policy

Each student are given **6 late passes (7-day extension each)** this quarter. After a homework assignment is due, you should see a "late pass" button in the description of the assignment. If an assignment is due on 1/12, using one late pass will extend the due date to 1/19. After using all your late passes, you can complete an assignment in "**Practice**" mode; then email me to update your scores manually. There is a **20% penalty** when I record your grade later.

Quizzes:

Eight Quizzes are assigned on week when there is no chapter test. Quiz problems are similar to homework problems and lecture examples. More details will be posted on Canvas by the end of the first week.

Midterms and Final

Two midterms and ***one final exam*** will be given. Every test counts. Every test counts. You CAN'T drop any.

8. Tentative Calendar

Week	Monday – Sunday	Notes
1	**4/7 – 4/13** 1.1 systems of linear equations 1.2 Gaussian Elimination 1.3 Matrice Operations	
2	**4/14 – 4/20 Quiz 1** 1.4 Inverses Matrix of 2x2 matrices 1.5 Finding Inverse using Elementary matrices 1.6 Application of Inverse Matrices 1.7 Diagonal, Triangular and Symmetric Matrices 1.8 Matrix Transformation	**Sat. Apr. 19h** last day to add. **Sun. Apr. 20th** last day to drop with no record.
3	**4/21 – 4/27 Quiz 2** 2.1 Determinants by Cofactor 2.2 Evaluating Determinants by Row Reduction 2.3 Properties of Determinants; Cramer's Rule 3.1 Vectors in 2D, 3D and n-D	
4	**4/28 – 5/4 Quiz 3** 3.2 Norm, Dot Product, and Distance in R^n 3.3 Orthogonality 3.4 The Geometry of Linear Systems 4.1 Real Vector Space	
5	**5/5 – 5/11 Test 1 Ch 1 – Ch 3** 4.2 Subspaces 4.3 Linear Independence	
6	**5/12 – 5/18 Quiz 4** 4.4 Coordinates and Basis 4.5 Dimension 4.6 change of Basis 4.7 Row Space, Column Space and Null Space	
7	**5/19 – 5/25 Quiz 5** 4.8 Rank, Nullity , and Fundamental matrix Space 4.9 Basis Matrix Transformation in R^2 and R^3 5.1 Eigenvalues and Eigenvectors	**5/24-26** Memorial Day Weekend
8	**5/26 – 6/1 Quiz 6** 5.2 Diagonalization 6.1 Inner Product 6.2 Angle and Orthogonality in Inner Product Space	**Friday, May. 30:** last day to drop with a "W".

9	**6/2 – 6/8** **Quiz 7** 6.3 Gran-Schmidt Process 6.4 Best Approximation 7.1 Orthogonal Matrices 7.2 Orthogonal Diagonalization	
10	**6/9 – 6/15** **Test 2 Ch 4 – Ch 6** 8.1 General Linear Transformation 8.2 Compositions and Inverse Transformation	
11	**6/16 – 6/22** **Quiz 8** 8.3 Isomorphism 9.2 or 9.4 10.4 Markov Chains	**6/19 Thursday** Juneteenth Holiday
12	**6/23 – 6/26** **Final Exam**	

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,W	1:00 PM - 1:30 PM	MLC 109
M,W	6:15 PM - 6:45 PM	MLC 109
T,TH	3:00 PM - 3:30 PM	Zoom
F	9:00 AM - 9:45 AM	Zoom
T,TH	3:30 PM - 3:55 PM	MLC 105