MATH 2318 001/VMC **Fall 2026**

Linear Algebra

Time: MW 2 – 3:15
Room: ACR 206

Instructor: Eric Funasaki
Offices: ACR 109C (MW 1 – 1:50, MW 3:30 – 5)
BAB 210 (MW 8 – 10:50, TRF 8 – 12, TRF 1 – 5)
Phone: 432-837-8109
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Office hours:

MW 1 – 1:50, MW 3:30 – 5, or by appointment.

Textbook:

Linear Algebra and its Applications, 6th edition, by David C. Lay, Steven R. Lay, and Judi J. McDonald.

Course Description:

Systems of linear equations, matrices, determinants, vector spaces, quadratic forms, linear transformations, eigenvalues and eigenvectors, and applications in science and engineering.

Prerequisites:

MATH 1316 or MATH 2413.

Mathematics Program Student Learning Outcomes:

The student should be able to:
1. Apply knowledge of basic mathematics principles;
2. Identify and provide valid proofs or solutions for theorems or problems; and
3. Recognize and dispute invalid mathematical statements using counterexamples.

Mathematics Program Marketable Skills:

1. Students demonstrate logical and analytical skills.
2. Students demonstrate problem-solving using analytical and algebraic methods.
3. Students use technology in problem-solving and presentation.
4. Students use communication and pedagogical skills.

Course Objectives:

The student will be able to:

1. Solve linear systems using row reduction;
2. Do matrix operations and understand invertible matrices;
3. Find the determinant of a matrix;
4. Identify vector spaces and subspaces as well as their properties; and
5. Find the eigenvalues and eigenvectors of a matrix.

Course Assessment:

Your grade will be based on the following components:

10% In-class problems and participation
20% Homework assignments and quizzes
48% Exams
22% Comprehensive Final Exam

The grading scale will be:

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

Course Schedule (tentative):

Week 1

8/24 M 1.1 Systems of Linear Equations
8/26 W 1.2 Row Reduction and Echelon Forms

Week 2

8/31 M 1.3 Vector Equations
9/2 W 1.3 Vector Equations, 1.4 The Matrix Equation

Week 3

9/7 M Labor Day (no class)
9/9 W 1.4 The Matrix Equation

Week 4

9/14 M 1.5 Solution Sets of Linear Systems
9/16 W 1.5 Solution Sets of Linear Systems, 1.7 Linear Independence

Week 5

9/21 M 1.8 Introduction to Linear Transformations, 1.9 The Matrix of a Linear Transformation
9/23 W Review for Exam 1

Week 6

9/28 M Exam 1
9/30 W 2.1 Matrix Operations

Week 7

10/5 M 2.1 Matrix Operations, 2.2 The Inverse of a Matrix
10/7 W 2.2 The Inverse of a Matrix, 2.3 Characterizations of Invertible Matrices

Week 8

10/12 M 2.5 Matrix Factorizations
10/14 W 3.1 Introduction to Determinants

Week 9

10/19 M 3.2 Properties of Determinants
10/21 W 5.1 Eigenvectors and Eigenvalues

Week 10

10/26 M Review for Exam 2
10/28 W Exam 2

Week 11

11/2 M 5.1 Eigenvectors and Eigenvalues, 5.2 The Characteristic Equation
11/4 W 5.5 Complex Eigenvalues

Week 12

11/9 M Population Models
11/11 W 4.1 Vector Spaces and Subspaces

Week 13

11/16 M 4.1 Vector Spaces and Subspaces, 4.3 Linearly Independent Sets; Bases
11/18 W 4.3 Linearly Independent Sets; Bases

Week 14

11/23 M Review for Exam 3
11/25 W Thanksgiving (no class)

Week 15

11/30 M Exam 3
12/2 W Review for Final Exam

Week 16

12/8 T Final Exam (3 pm – 5 pm)

Attendance Policy:

Role will be taken. You are responsible for all material covered in class as well as any assignments and announcements that are made. If you miss an assignment, exam, or quiz you will receive a grade of zero unless I have been notified in advance.

Sul Ross State University policy allows an instructor to drop a student with a grade of W or F when 9 hours of class are missed. For this course that is when you miss **6** classes.

Cheating:

Cheating will not be tolerated. Anyone caught cheating will receive a grade of zero on that assignment. This includes homework assignments where the student who copied another student's work and the student who allowed their work to be copied will both receive a grade of zero.

Cell Phones and Other Electronic Devices:

Your cell phone must be **off** while you are in class. You may not read or send text messages while class is in session. If there is an unusual situation where you simply must be able to read and send a message without delay, place your phone in vibrate mode and leave the room before reading and responding. No other electronic devices may be used during class without the permission on the instructor.

Use of Generative Artificial Intelligence (AI):

In this course, every element of class assignments must be fully prepared by the student. The use of generative AI tools for any part of your work will be treated as plagiarism. If you have questions, please contact me.

Student Responsibilities Statement:

All full-time and part-time students are responsible for familiarizing themselves with the Student Handbook and the Undergraduate and Graduate Catalog and for abiding by the University rules and regulations. Additionally, students are responsible for checking their Sul Ross email as an official form of communication from the university. Every student is expected to obey all federal, state, and local laws and is expected to familiarize themselves with the requirements of such laws.

ADA Statement:

Sul Ross State University (SRSU) is committed to equal access in compliance with the Americans with Disabilities Act of 1973. It is SRSU policy to provide reasonable accommodations to students with documented disabilities. It is the student's responsibility to initiate a request each semester for each class. To help protect confidentiality, students seeking accessibility/accommodation(s) services must submit the Accommodation Request Form located on our website. Students are welcome to call the Office of Accessibility Services at 432-837-8203 or stop by Ferguson Hall Room 112 if they have any additional questions regarding the process. Our mailing address is PO Box C-122; Alpine, TX 79832.

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