

Sul Ross State University
Course Syllabus
MATH 2318-001: Linear Algebra
Fall 2015

Instructor: Dr. Angela Brown

Office Number: ACR 107B

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Email Address: abrown4@sulross.edu

Office Hours: 10-11 WF, 9-12 TR, others by appointment

Time and Place of Class Meetings: MWF 11:00-11:50 am ACR 206

Course Prerequisites: Passing grade in MATH 1316: Trigonometry

Mathematics Program Learning Objectives: The graduating student should be able to

- Apply knowledge of basic mathematics principles.
- Identify and provide valid proofs or solutions for theorems or problems.
- Recognize and dispute invalid mathematical statements by using counter-examples.

Course Objectives:

- The student will be able to evaluate matrices using matrix operations.
- The student will apply their knowledge of matrices to real world problems.
- The student will be able to define what a vector space is.
- The student will be able to change from one basis to another using various techniques.
- The student will be able to apply their knowledge of linear algebra to other courses in the program.

Required Textbooks: *Linear Algebra and Its Applications* 4th ed, Lay ISBN 978-0-321-38517-8. Homework will be assigned from the text.

Other Equipment Needed: paper and pencils.

Grading Scale: 90-100 A, 80-89 B, 70-79 C, 60-69 D, 59-Below F

Grading Policy: The grade weighting will be as follows:

Quizzes/Homework/in Class Assignments: 30%

Project: 15%

Exams: 30%

Final Exam: 25%

Quizzes: Quizzes will be given periodically. You will have advanced warning of most quizzes. Additional in class assignments will be given and counted the same as quiz and homework grades.

Homework: Homework will be assigned daily and homework will be taken up at the beginning of class on Monday. Homework will be graded on completion and accuracy. Copying answers out of the back of the book is plagiarism and will be prosecuted.

Project: Chapters 7-10 will not be covered in class. Each student will need to pick one section to write up a set of notes for and complete 10 additional problems from the section. Students will present this information, if time remains, on the last two days of class.

Exams: No make-up exams will be given. If there is a valid reason for missing an exam, then the grade for the missed exam will be replaced by the grade on the final exam. Otherwise, a missed exam will be a zero. Exams will be closed notes, closed book, and no calculator will be allowed. Any restroom breaks need to be taken before an exam starts. You cannot leave the classroom in the middle of an exam under any circumstances.

Final Exam Date: Wednesday, December 9 at 10:15 am

Attendance Policy: Students are expected to attend every class. If class must be missed, the student is expected to get the notes from a classmate, and to check with me or on Blackboard for announcements and updated assignments.

Students are expected to arrive to class on time. If a student is perpetually late, they will be asked to not attend class unless they arrive on time. If tardiness becomes a problem for the class as a whole, people who arrive late will not be permitted to enter the class. If this stricter policy becomes necessary, there will be an announcement made in class.

It is policy of the university to drop a student with a grade of "F" if 9 hours or more of class are missed. For this course that would be 9 or more class sessions missed.

Cell Phone Policy: Cell phones are not allowed in class. They can not be used as calculators on any assignment. Any phone ringing during class will be taken up until the end of class. If a phone rings during a test or quiz, the student will forfeit their right to finish said test or quiz.

Americans With Disabilities Act: Sul Ross State University is committed to equal access in compliance with the Americans With Disabilities Act of 1973. As an instructor I am required to give students reasonable accommodations in each course. It is the student's responsibility to initiate a request for accessibility services. Contact Mary Schwartz, the ADA Coordinator in Counseling and Accessibility Services Ferguson Hall, Room 112. Her phone number is 432-837-8203 or you can email her at mschwartz@sulross.edu.

Important Dates:

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| August 24 | First Day of Classes |
| August 27 | Last Day for Late Registration and Schedule Changes |
| September 7 | Labor Day Holiday |
| September 9 | 12th Class Day |
| November 13 | Last Day to Withdrawal from University or Drop Classes with a Grade of "W" (by 4 pm) |
| November 25-27 | Thanksgiving Holiday |
| December 2 | Last Day of Classes |
| December 3-4 | Dead Days |
| December 7-10 | Final Exams |
| December 12 | Commencement |

Tentative Schedule-Subject to Change

| | Monday | | Wednesday | | Friday |
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| Aug. 24 | Systems of Linear Equations | Aug. 26 | Row Reduction and Echelon Forms | Aug. 28 | Vector Equations |
| Aug. 31 | Matrix Equations | Sept. 2 | Solutions of Linear Systems and Applications | Sept. 4 | Linear Independence |
| Sept 7 | Labor Day | Sept 9 | Linear Transformations | Sept 11 | Linear Transformations |
| Sept 14 | Matrix Operations and Matrix Inverse | Sept 16 | Partitioned Matrices | Sept 18 | Matrix Factorizations |
| Sept 21 | Subspaces of \mathbb{R}^n | Sept 23 | Dimension and Rank | Sept 25 | Determinants |
| Sept. 28 | Cramer's Rule | Sept. 30 | Exam 1 | Oct.2 | Vector Spaces |
| Oct. 5 | Null and Col Spaces and Linear Trans | Oct. 7 | Bases | Oct.9 | Coordinate Systems |
| Oct. 12 | Rank | Oct. 14 | Eigenvectors and Eigenvalues | Oct.16 | Characteristic Equation |
| Oct. 19 | Exam 2 | Oct. 21 | Diagonalization | Oct.23 | Eigenvectors and Linear Transformations |
| Oct. 26 | Inner Product, Length and Orthogonality | Oct. 28 | Orthogonal Sets | Oct. 30 | Orthogonal Projections |
| Nov 2 | Gram-Schmidt Linear Diff Eqns | Nov. 4 | Least Squares | Nov. 6 | Inner Product Space |
| Nov 9 | Applications of Inner Products | Nov. 11 | Diagonalization | Nov. 13 | Quadratic Forms |
| Nov 16 | Exam 3 | Nov. 18 | Constrained Optimization | Nov. 20 | Singular Value Decomposition |
| Nov 23 | Review | Nov. 25 | Thanksgiving Holiday | Nov. 27 | Thanksgiving Holiday |
| Nov. 31 | Present/Catch up Day | Dec.2 | Present/Catch up Day | | |