South Plains College
Mathematics Department
Linear Algebra – MATH 2318
Course Syllabus
Spring 2019

Instructor: Jay Driver   **Office Hours:** MW 1:30-2:30pm
Office: M114 (mathematics building)   TR 1:30-3:00pm
Telephone: (806) 716-2780   F 9:00am-12:00pm
Email: jdriver@southplainscollege.edu   And by appointment!

Course Description: MATH 2318. LINEAR ALGEBRA. (3:3:0) Prerequisite: MATH 2413.
This course introduces and provides models for application of the concepts of vector algebra. Topics include finite dimensional vector spaces and their geometric significance; representing and solving systems of linear equations using multiple methods, including Gaussian elimination and matrix inversion; matrices; determinants; linear transformations; quadratic forms; eigenvalues and eigenvector; and applications in science and engineering.

Course Objectives: Successful completion of this course should reflect mastery of the following objectives.
    1. Be able to solve systems of linear equations using multiple methods, including Gaussian elimination and matrix inversion.
    2. Be able to carry out matrix operations, including inverses and determinants.
    3. Demonstrate understanding of the concepts of vector space and subspace.
    4. Demonstrate understanding of linear independence, span, and basis.
    5. Be able to determine eigenvalues and eigenvectors and solve problems involving eigenvalues.
    6. Apply principles of matrix algebra to linear transformations.
    7. Demonstrate application of inner products and associated norms

Textbook: Textbook references for this course may be any one of the following:
- Larson, R., Edwards, B. H. & Falvo, D. C. (2004). Elementary Linear Algebra, Fifth ed. Boston, MA: Houghton Mifflin Company. ISBN 0-618-33567-6.
- Larson, R. & Falvo, D. C. (2009). Elementary Linear Algebra, Sixth ed. Boston, MA: Houghton Mifflin Company. ISBN 0-618-78376-8.
- Larson, R. (2013). Elementary Linear Algebra, Seventh ed. Boston, MA: Brooks/Cole. ISBN 978-1-133-11087-3.
- Larson, R. (2017). Elementary Linear Algebra, Eighth ed. Boston, MA: Cengage Learning. ISBN 978-1-305-65800-4.

Supplies: You will need a calculator capable of matrix algebra (a TI-graphing calculator such as the TI-84 works well), a minimal supply of graph paper, and a 3-ring binder. Calculators on cell phones or other electronic devices are strongly discouraged and will not be allowed during testing without permission.

Attendance: Attendance and effort are the most important activities for success in this course. Class attendance may be taken at any time during the class period, so please do not arrive late or leave early. You may be dropped from this course with a grade of X or F if you are absent three consecutive classes or if you exceed five absences throughout the semester. Be on time and silence any cell phones before entering the classroom.

Assignments & Grading: Homework assignments will be made at each class meeting. Quizzes may be administered at any time. Keep all class materials (notes, handouts, homework, quizzes, and exams) organized in a notebook (3-ring binder). These materials are subject to be turned in for grading at any time. Please make certain all materials accompany you to each class meeting. No late assignments will be accepted. Daily work (homework, quizzes, notebook) will count for 20% of the final grade, while all exams count for 80% of the final grade. Expect four major exams (15% each) throughout the course and a cumulative final exam (20%) at the end of the course. Your final average in the course will determine the letter grade posted on your

transcript. This grade is determined by the following scale: A (90-100%), B (80-89%), C (70-79%), D (60-69%), F (0-59%).

Format for submitting all assignments:
1. Write the problem on your own paper.
2. Show all necessary work.
3. Clearly mark your answer.
4. Check your answers on Blackboard to make certain you are practicing correctly.

Blackboard: Blackboard is the online course management system that will be utilized for this course. This course syllabus, as well as any class handouts can be accessed through Blackboard. Login at https://southplainscollege.blackboard.com/. The user name and password should be the same as the MySPC and SPC email.

User name: first initial, last name, and last 4 digits of the Student ID
Password: Original CampusConnect Pin No. (found on SPC acceptance letter)

Questions regarding Blackboard support may be emailed to blackboard@southplainscollege.edu or by telephone to 806-716-2180.

Diversity: In this class, the teacher will establish and support an environment that values and nurtures individual and group differences and encourages engagement and interaction. Understanding and respecting multiple experiences and perspectives will serve to challenge and stimulate all of us to learn about others, about the larger world and about ourselves. By promoting diversity and intellectual exchange, we will not only mirror society as it is, but also model society as it should and can be.

Disability: Students with disabilities, including but not limited to physical, psychiatric, or learning disabilities, who wish to request accommodations in this class should notify the Disability Services Office early in the semester so that the appropriate arrangements may be made. In accordance with federal law, a student requesting accommodations must provide acceptable documentation of his/her disability to the Disability Services Office. For more information, call or visit the Disability Services Office at Levelland (Student Health & Wellness Office) 806-716-2577, Reese Center (Building 8) & Lubbock Center 806-716-4675, or Plainview Center (Main Office) 806-716-4302 or 806-296-9611.

South Plains College does not discriminate on the basis of race, color, national origin, sex, disability or age in its programs and activities. The following person has been designated to handle inquiries regarding the non-discrimination policies: Vice President for Student Affairs, South Plains College -1401 College Avenue, Box 5, Levelland, TX 79336, 806-894-9611.

Linear Algebra Tentative Course Outline
MATH 2318.001 (TR 11:00 – 12:15pm)
Spring 2019

Week	Day	Date	Lesson Topic
1	Tue	Jan 15	*Assignment 1:* Linear Systems
	Thur	Jan 17	*Assignment 2:* Gauss-Jordan Elimination (GJE)
2	Tue	Jan 22	*Assignment 3:* Applications of Linear Systems
	Thur	Jan 24	*Assignment 4:* Summations
3	Tue	Jan 29	*Assignment 5:* Matrix Operations & Properties
	Thur	Jan 31	*Assignment 6:* Matlab #1
4	Tue	Feb 5	**Exam 1 (15%)**
	Thur	Feb 7	*Assignment 7:* Matrix Inverses
5	Tue	Feb 12	*Assignment 8:* Special Matrices
	Thur	Feb 14	*Assignment 9:* Determinants
6	Tue	Feb 19	*Assignment 10:* Determinant Properties
	Thur	Feb 21	*Assignment 11:* Determinant Applications
7	Tue	Feb 26	**Exam 2 (15%)**
	Thur	Feb 28	*Assignment 12a:* Vector Spaces (part 1 of 2)
8	Tue	Mar 5	*Assignment 12b:* Vector Spaces (part 2 of 2)
	Thur	Mar 7	*Assignment 13:* Linear Independence
	Mon-Fri	Mar 11-15	*SPC Spring Break (all offices closed)*
9	Tue	Mar 19	*Assignment 14:* Basis / Dimension
	Thur	Mar 21	*Assignment 15:* Rank / Change of Basis
10	Tue	Mar 26	*Assignment 16:* Vector Operations (part 1 of 2)
	Thur	Mar 28	*Assignment 17:* Vector Operations (part 2 of 2)
11	Tue	Apr 2	*Assignment 18:* Matlab #2
	Thur	Apr 4	**Exam 3 (15%)**
12	Tue	Apr 9	*Assignment 19:* Linear Transformations & Matrices of Linear Transformations
	Thur	Apr 11	*Assignment 20:* Transition Matrices & Similarity
13	Tue	Apr 16	*Assignment 21:* Eigenvalues / Eigenvectors
	Thur	Apr 18	*Assignment 22:* Diagonalization & Orthogonal Diagonalization
14	Tue	Apr 23	*Assignment 23:* Matlab #3
	Thur	Apr 25	**Exam 4 (15%)** *Last day to drop a class at SPC*
15	Tue	Apr 30	*Assignment 24:* Applications of Eigenvalues and Eigenvectors (part 1 of 2)
	Thur	May 2	*Assignment 25:* Applications of Eigenvalues and Eigenvectors (part 2 of 2)
16	Tue	May 7	**Final Exam (20%) from 10:15am-12:15pm**