SEMINOLE STATE COLLEGE
OF FLORIDA

Linear Algebra Syllabus
MAS 2103, Summer 2021, May 17 – June 18

Course & Instructor Information

Instructor: Kristine Buddemeyer
Office Hours: By Appointment
Course Time: Distance Learning
Contact Hours: 45
Credits: 3

Course Description

This is a survey course of introductory linear algebra. Fundamental concepts of linear algebra and matrix theory are introduced. Topics in the course include vectors, matrices, determinants, linear transformations, systems of linear equations, eigenvalues, eigenvectors, and their applications.

Prerequisites

MAC2311 (Calculus I) or equivalent.

Textbook Information

Linear Algebra and Its Applications, 5th Edition, David C. Lay. ISBN: 9780321982384
You will need to purchase an access code for MyMathLab. This comes with an e-book, so it is optional to purchase the physical textbook.
The course code you will need to enroll in the homework is: buddemeyer42725

Collegewide Student Learning Outcomes

The Collegewide Student Learning Outcomes assessed and reinforced in this course include the following:

- Communication
- Critical Thinking
- Scientific and Quantitative Reasoning
- Information Literacy
- Global Sociocultural Responsibility

Course Requirements

- Required weekly textbook reading and video lectures
- Required course written assignments to be completed before the due date
- Required online homework assignments

Attendance/Makeup Policy

The College recognizes the correlation between attendance and both student retention and achievement. Per College Policy 3.060 **Students are expected to attend all class meetings of all courses for which they are registered**.

Class attendance is mandatory, attendance will be measured by the submission of written homework, online homework, and exams by their published due dates. Poor attendance, habitual tardiness, and disruptive conduct will adversely affect your grade.

You will be allowed to make up work for full credit only under extreme circumstances (such as a documented, serious health-related emergency). ***Written assignments cannot be made up as the key will be posted after the assignment is due.***

Cheating will not be tolerated. This includes giving or receiving aid on a quiz or exam and plagiarizing the work of others (including your classmates). There will likely be homework or in-class work that will allow for collaboration, but all work you turn in must be in your own words.

Classroom rules

Please respect the education of your fellow students. All exams must be proctored. The following are not allowed:

- Unauthorized materials on exams

Course Outline

Please note that this outline is meant to give an overview of the major concepts of this course. Changes may occur in this calendar as needed to aid in the student's development.

WEEK ONE

Chapter 1:
Section 1.1 – Systems of Linear Equations
Section 1.2 – Row Reduction and Echelon Forms
Section 1.3 – Vector Equations
Section 1.4 – The Matrix Equation $A\boldsymbol{x} = \boldsymbol{b}$
Section 1.5 – Solution Sets of Linear Systems
Section 1.7 – Linear Independence
Section 1.8 – Introduction to Linear Transformations
Section 1.9 – The Matrix of a Linear Transformation

WEEK TWO

Chapter 2:
Section 2.1 – Matrix Operations
Section 2.2 – The Inverse of a Matrix
Section 2.3 – Characteristics of Invertible Matrices
End of Exam #1 Material

Section 2.5 – Matrix Factorizations
Section 2.8 – Subspaces of $\mathbb{R}^n$
Section 2.9 – Dimension and Rank

EXAM #1 (Ch. 1 & Sections 2.1 – 2.3)

WEEK THREE

Chapter 3
Section 3.1 – Introduction to Determinants
Section 3.2 – Properties of Determinants
Section 3.3 – Cramer's Rule, Area, and Linear Transformations

Chapter 4
Section 4.1 – Vector Spaces and Subspaces
Section 4.2 – Null Spaces, Column Spaces, and Linear Transformations
Section 4.3 – Linearly Independent Sets; Bases
Section 4.5 – The Dimensions of a Vector Space
Section 4.6 – Rank
Section 4.7 – Change of Bases

WEEK FOUR

Chapter 5
Section 5.1 – Eigenvectors and Eigenvalues
Section 5.2 – The Characteristic Equation
Section 5.3 – Diagonalization
End of Exam #2 Material

Section 5.4 – Eigenvectors and Linear Transformations
Section 5.5 – Complex Eigenvalues
EXAM #2 (2.5, 2.8 – 2.9, Ch. 3, 4.1 –4.3, 4.5 - 4.7, 5.1 – 5.3)

WEEK FIVE

Chapter 6
Section 6.1 – Inner Product, Length, & Orthogonality
Section 6.2 – Orthogonal Sets
Section 6.3 – Orthogonal Projections
Section 6.4 – The Gram-Schmidt Process

FINAL EXAM (5.4, 5.5, Ch. 6 & Comprehensive)

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Grading Policy

Your grade will be based on online homework, written homework that will be scanned and submitted each week, and exams.

Online Homework	15%
Written Assignments	10%
Exams	50%
Final Exam	25%

Grading Scale

A = 90-100%   B = 80-89%   C = 70-79%   D = 60-69%   F = Below 60%

"A" grades are given for outstanding work. You are doing extremely well. The student has exceeded expectation.

"B" grades are given for above average work. You are doing very well. Improvements will be toward higher refinements of concept.

"C" grades are given for average work. You are meeting an acceptable level or expectation. Improvements will be towards acceptable levels of project requirements.

"D" grades are given for below average work. You are under-achieving in quality and/or motivation. Improvements will be towards acceptable level of project requirements.

"F" grades are given for failure. You are not reaching the expected level for college work. Improvements are to review goals, seek assistance and increase efforts.

Academic Integrity

As members of the Seminole State College of Florida community, students are expected to be honest in all their academic coursework and activities.

Academic dishonesty, such as cheating of any kind on examinations, course assignments or projects, plagiarism, misrepresentation and the unauthorized possession of examinations or other course-related materials, is prohibited.

Students who share their work for the purpose of cheating on class assignments or tests are subject to the same penalties as the student who commits the act of cheating.

When cheating or plagiarism has occurred, instructors may take academic action that ranges from denial of credit for the assignment or a grade of "F" on a specific assignment, examination or project, to the assignment of a grade of "F" for the course. Students may also be subject to further sanctions imposed by the judicial officer, such as disciplinary probation, suspension or dismissal from the College.