MATH 2318-01E Linear Algebra

COURSE SYLLABUS: Fall 2024
MWF 10:00am-10:50am BINB302

INSTRUCTOR INFORMATION

Instructor: Dr. R. Cavender Campbell
Office Location: Binnion 303B
University Email Address: robert.campbell@tamuc.edu
Office Phone: 903-468-8660

Office Hours: MTWFR 9:00-9:50am, MW 12:30-1:30pm, or by appointment (Zoom available)

Preferred Form of Communication**: Email**

Communication Response Time: Same or Next Business Day

COURSE INFORMATION

Textbook

Lay, Lay & McDonald. (2019). *Linear Algebra and its Applications* (6th ed.). Pearson.
An eText is available with your MyMathLab subscription.

Course Description

MATH 2318 – Linear Algebra – Hours: 3

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 eigenvectors; and applications in science and engineering. Prerequisites: MATH 2414 with a minimum grade of C or Math 192 with a minimum grade of C.

Student Learning Outcomes

1. Students will demonstrate proficiency in the use of mathematics to structure their understanding of and investigate questions in the world around them.
2. Students will demonstrate proficiency in treating mathematical content at an appropriate level.
3. Students will demonstrate competence in the use of numerical, graphical, and algebraic representations.
4. Students will demonstrate the ability to interpret data, analyze graphical information, and communicate solutions in written and oral form.
5. Students will demonstrate proficiency in the use of mathematics to formulate and solve problems.
6. Students will demonstrate proficiency in using technology such as handheld calculators and computers to support their use of mathematics.

The *syllabus/schedule are subject to change.*

Student Assessment Outcomes

1. Critical Thinking: Will be measured in homework, quiz, and test questions.
2. Written, Oral, & Visual Communication: Students will be assessed on written, oral, and visual communication skills during assignments
3. Empirical and quantitative reasoning: All assessments in this course will contain a quantitative reasoning and empirical computation component.

Course Learning Outcomes

1. Find solutions of systems of linear equations by using Gauss-Jordan elimination.
2. Identify and compute algebraic properties of matrices and determinants.
3. Demonstrate a thorough knowledge of vector spaces and subspaces.
4. Determine the following for a given matrix: basis and rank for column, row, and null spaces, eigenvalues, eigenvectors, basis and rank for eigenspaces.
5. Define linear transformations and examine the properties of linear transformations.
6. Identify inner product spaces and use Gram-Schmidt orthogonalization process to orthogonalize any given basis.

COURSE REQUIREMENTS

Instruction will include in-persons lessons and available videos. Students should interact with the instructor and other students in both office hours and class meetings. It is critical that you be able to access both D2L and Pearson's MyMathLab to succeed in the course.

Homework will be accessed through Pearson's MyMathLab at www.mymathlab.com with the Course ID ***campbell39519***. Students must sign up for My Math Lab by September 7th and complete the orientation and syllabus assignment and acknowledge the course requirements.

Quizzes will be assigned in class and students can use their notes.

Checks for Understanding will be completed through D2L.

Exams will be completed during class with an additional at-home component that will be submitted with your test.

A graphing calculator (e.g.,TI-84) is highly recommended.

GRADING

Final grades in this course will be based on a total points system:

A: 930 – 830 B: 829 – 730 C: 729 – 630 D: 629 – 530 F: 529 – 0

The instructor reserves the right to reward students for continuous hard work.

The grade will be composed of:

My Math Lab Homework – 260 points

Quizzes (7) – 1 at 10 points & 6 at 15 points each = 100 points

Checks for Understanding (5) – 20 points each = 100 points

Unit Exams (3) – 100 points each = 300 points

Final Exam – 170 points

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Assessments

My Math Lab Homework: Homework assignments will be for practice and an opportunity to demonstrate understanding of the material. I encourage you to discuss homework assignments with your classmates, but all work must be your own. Any work violating the university's guidelines for academic honesty will receive a grade of zero. All assignments are completed in Pearson's MyMathLab. There are 520 questions in the required assignments and 57 questions in the bonus assignments. The required assignments are numbered, #1 – #29, and the bonus assignments have letters A – D. The points earned in this category will be the number of questions answered correctly divided by 2. The 520 required questions divided by 2 yields the category total of 260.

Students must sign up for MyMathLab at www.mymathlab.com with Course ID ***campbell39519*** by September 6th and complete the orientation and syllabus assignment and acknowledge the course requirements.

Quizzes: There will be one quiz worth 10 points and six quizzes worth 15 points each. Problems will be similar to those seen on the Midterm and Final Exams, but the shorter format will allow the professor to see the students' progress on individual concepts. Quizzes will be open notes and completed during class time.

Checks for Understanding (CFU): There will be five Checks for Understanding worth 20 points each. Each CFU consists of 10 true/false questions. The student should use the questions to deepen their understanding of the definitions and concepts. The importance of each portion of a definition, theorem, or procedure should be carefully considered for each question. CFUs are completed inside of D2L. Only one attempt per CFU is allowed.

Unit Exams and Final Exam: There will be three Unit Exams worth 100 points each and a Final Exam worth 170 points. The exams will have objective, short answer, and free response style questions. The sections covered on each exam are shown in the course outline at the end of the syllabus. The Final Exam will be comprehensive of all material covered in the course. All exams will take place during regular class time and include a take home component distributed the class meeting before the test and should be submitted with the test.

TECHNOLOGY REQUIREMENTS

LMS

All course sections offered by Texas A&M University-Commerce have a corresponding course shell in the myLeo Online Learning Management System (LMS). Below are technical requirements. Note that YouSeeU-Virtual Classroom will be used for virtual office hours.

LMS Requirements and Browser Support:
https://community.brightspace.com/s/article/Brightspace-Platform-Requirements

LMS Browser Support:
https://documentation.brightspace.com/EN/brightspace/requirements/all/browser_support.htm

MyMathLab Information: mymathlab.com

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ACCESS AND NAVIGATION

You will need your campus-wide ID (CWID) and password to log into the course. If you do not know your CWID or have forgotten your password, contact the Center for IT Excellence (CITE) at 903.468.6000 or helpdesk@tamuc.edu**.**

Note: Personal computer and internet connection problems do not excuse the requirement to complete all course work in a timely and satisfactory manner. Each student needs to have a backup plans to deal with these inevitable problems. If accommodations are needed, they will be considered on a case-by-case basis. In general students are expected to be able to complete the course completely online.

COMMUNICATION AND SUPPORT

If you have any questions or are having difficulties with the course material, please contact your Instructor. Please use email or visit the instructor during office hours. The instructor will make every effort to respond by the next business day at the latest. Additional time to meet with you can be set up if there are conflicts in availability.

Technical Support

If you are having technical difficulty with any part of Brightspace, please contact Brightspace Technical Support at 1-877-325-7778. Other support options can be found here: https://community.brightspace.com/support/s/contactsupport

COURSE POLICIES

Homework assignments are available from the beginning of the semester. The schedules at the end of the syllabus indicate what sections are assigned each week. Each homework assignment is due one week after it is assigned at class time, 10:00am Wednesday. Homework assignments must be completed within the unit they are assigned. Each Friday will have an assessment: either a Quiz, a Check for Understanding (CFU), or an exam (with both in-class and take-home sections). Quizzes or tests will take place or be distributed during class time. CFUs will be available at the end of class (3:15pm) on the Thursday they are assigned and must be submitted by the start of class (2:00pm) on Tuesday of the following week.

Missed tests will not be made up after the grades have been returned to the class, but documented absences will be accommodated through other means agreed upon with the instructor. Tests may be taken early if an approved absence is anticipated, and a time arranged with the instructor. Prompt arrival at test time will maximize available time and improve performance.

A missed quiz can be made up during the professor's office hours until the next quiz or test. Should a documented need arise due to multiple absences it will be considered on a case-by-case basis.

Personal electronic devices and laptops will not be allowed during exams or quizzes. Causing a distraction or creating a barrier to learning for other students will be grounds for banning of device use, but typically devices will be allowed during classes.

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Syllabus Change Policy

The syllabus is a guide. Circumstances and events, such as student progress, may make it necessary for the instructor to modify the syllabus during the semester. Any changes made to the syllabus will be announced in advance.

University Specific Procedures

Public Health Policy

Students should not attend class or on campus gatherings when ill or after exposure to anyone with a communicable illness. Communicate such instances directly with your instructor. Faculty will work to support the student getting access to missed content or completing missed assignments. Though the instructor will plan an initial method of attendance (in-person), changes may be necessary as the semester progresses.

TAMUC Attendance

For information about the university attendance policy please visit:
http://www.tamuc.edu/admissions/registrar/generalInformation/attendance.aspx

Student Conduct

All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. The Code of Student Conduct is described in detail in the Student Guidebook.
http://www.tamuc.edu/Admissions/oneStopShop/undergraduateAdmissions/studentGuidebook.aspx

Academic Integrity

Students at Texas A&M University-Commerce are expected to maintain high standards of integrity and honesty in all of their scholastic work. For more details and the definition of academic dishonesty see procedure 13.99.99.R0.
http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/undergraduates/13.99.99.R0.03UndergraduateAcademicDishonesty.pdf

Artificial Intelligence

Texas A&M University-Commerce acknowledges that there are legitimate uses of Artificial Intelligence, ChatBots, or other software that has the capacity to generate text, or suggest replacements for text beyond individual words, as determined by the instructor of the course.

Any use of such software must be documented. Any undocumented use of such software constitutes an instance of academic dishonesty (plagiarism).

Individual instructors may disallow entirely the use of such software for individual assignments or for the entire course. Students should be aware of such requirements and follow their instructors' guidelines. If no instructions are provided the student should assume that the use of such software is disallowed.

In any case, students are fully responsible for the content of any assignment they submit, regardless of whether they used an AI, in any way. This specifically includes cases in which the AI plagiarized another text or misrepresented sources.

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Nondiscrimination Notice

Texas A&M University-Commerce will comply in the classroom, and in online courses, with all federal and state laws prohibiting discrimination and related retaliation on the basis of race, color, religion, sex, national origin, disability, age, genetic information or veteran status. Further, an environment free from discrimination on the basis of sexual orientation, gender identity, or gender expression will be maintained.

Campus Concealed Carry Statement

Texas Senate Bill - 11 (Government Code 411.2031, et al.) authorizes the carrying of a concealed handgun in Texas A&M University-Commerce buildings only by persons who have been issued and are in possession of a Texas License to Carry a Handgun. Qualified law enforcement officers or those who are otherwise authorized to carry a concealed handgun in the State of Texas are also permitted to do so. Pursuant to Penal Code (PC) 46.035 and A&M-Commerce Rule 34.06.02.R1, license holders may not carry a concealed handgun in restricted locations.

For a list of locations, please refer to the Carrying Concealed Handguns On Campus document and/or consult your event organizer.

Web URL:
http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/34SafetyOfEmployeesAndStudents/34.06.02.R1.pdf

Pursuant to PC 46.035, the open carrying of handguns is prohibited on all A&M-Commerce campuses. Report violations to the University Police Department at 903-886-5868 or 9-1-1.

Counseling Services

The Counseling Center at A&M-Commerce, located in the Halladay Building, Room 203, offers counseling services, educational programming, and connection to community resources for students. Students have 24/7 access to the Counseling Center's crisis assessment services by calling 903-886-5145. For more information regarding Counseling Center events and confidential services, please visit www.tamuc.edu/counsel.

Students with Disabilities-- ADA Statement

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

Office of Student Disability Resources and Services

Texas A&M University-Commerce
Gee Library- Room 162
Email: studentdisabilityservices@tamuc.edu

Phone (903) 886-5150 or (903) 886-5835
Fax (903) 468-8148

http://www.tamuc.edu/campusLife/campusServices/studentDisabilityResourcesAndServices/

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COURSE OUTLINE

Chapter	Topics	Sections	Assignments
0	Orientation & Syllabus	O	#1
1	Linear Equations & Matrices	1.1 – 1.9	#2 – #10
2	Matrix Algebra	2.1 – 2.3, 2.5, 2.8, 2.9	#11 – #16
3	Determinants	3.1 – 3.3	#17, #18, Bonus A
4	Vector Spaces & Basis	4.1 – 4.6	#19 – #22, Bonus B & C
5	Eigenvalues & Eigenspaces	5.1 – 5.3, 5.5	#23 – #25, Bonus D
6	Orthogonality & Normality	6.1 – 6.4	#26 – #29

Date	Assessment	Sections
Aug. 30	Quiz 1 (Online)	O, 1.1
Sept. 6	Quiz 2	1.2, 1.3, 1.4
Sept. 13	CFU 1	1.1, 1.2, 1.3, 1.4, 1.5, 1.6
Sept. 20	Quiz 3	1.6, 1.7, 1.8, 1.9, 2.1
Sept. 27	**Exam 1**	Chapter 1, 2.1, 2.2
Oct. 4	Quiz 4	2.1, 2.2, 2.3, 2.5
Oct. 11	CFU 2	1.7, 1.8, 1.9, 2.1, 2.2, 2.3, 2.5
Oct. 18	CFU 3	2.8, 2.9, 3.1, 3.2, 3.3
Oct. 25	**Exam 2**	2.3, 2.5, 2.8, 2.9, 3.1, 3.2, 4.1
Nov. 1	Quiz 5	4.1, 4.2, 4.3
Nov. 8	Quiz 6	4.4, 4.5, 4.6, 5.1
Nov. 15	Quiz 7	5.2, 5.3, 5.4, 5.5
Nov. 22	CFU 4	4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 5.1, 5.2
Nov. 25	**Exam 3**	4.3, 4.4, 4.6, 5.1, 5.2, 5.3, 6.1, 6.2
Dec. 5	CFU 5	5.2, 5.3, 5.5, 6.1, 6.2, 6.3, 6.4
Dec. 9	**Final Exam 10:30 AM – 12:30 PM**	All Sections

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MATH 2318-01E – Linear Algebra – Fall 2024
Course Calendar

Sun.	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
Aug 25	26	27	28	29	30 Quiz 1	31
Sep 1	2 Labor Day	3	4 O, 1.1	5	6 Quiz 2	7
8	9	10	11 1.2, 1.3, 1.4	12	13 CFU 1	14
15	16	17	18 1.5, 1.6, 1.7	19	20 Quiz 3	21
22	23	24	25 1.8, 1.9, 2.1	26	27 **Exam 1**	28
29	30	Oct 1	2 2.2	3	4 Quiz 4	5
6	7	8	9 2.3, 2.5	10	11 CFU 2	12
13	14	15	16 2.8, 2.9, 3.1	17	18 CFU 3	19
20	21	22	23 3.2, 3.3, 4.1	24	25 **Exam 2**	26
27	28	29	30 4.2	31	Nov 1 Quiz 5	2
3	4	5	6 4.3, 4.4	7	8 Quiz 6	9
10	11	12	13 4.5, 4.6	14	15 Quiz 7	16
17	18	19	20 5.1, 5.2, 5.3	21	22 CFU 4	23
24	25 **Exam 3**	26	27 5.5, 6.1, **Thanksgiving Holidays**	28	29	30
Dec 1	2	3	4 6.2, 6.3, 6.4	5	6 CFU 5	7
8	9 - 10:30am **Final Exam**	10	11	12	13	14