MATH 531.01W, Introduction to Theory of Matrices
COURSE SYLLABUS: FALL- 2021

INSTRUCTOR INFORMATION

Instructor: Padmapani (Pani) Seneviratne
Office Location: BIN 316
Office Hours: TR 11:00 – 12:30; T 3:15 – 4:15
W 2:00 – 3:00 on Zoom
Office Phone: 903-886-5952
Office Fax: 903-886-5945
University email: padmapani.seneviratne@tamuc.edu
Preferred Communication: email
Response time: within 24 hours during weekdays
Class Location: MyLeo-Online(D2L)
Class Time: Online

COURSE INFORMATION

Materials – Textbooks, Readings, Supplementary Readings

Textbook(Main): Matrix analysis and applied linear algebra, Carl D. Meyer,
ISBN 978-0-898714-54-8, SIAM

Supplementary text: Linear Algebra, Friedberg, Insel, Spence, 4th edition, Pearson.

Software : A free software such as sagemath will be used to illustrate examples.

Calculator: optional.

Course Description

Vector spaces, linear equations, matrices, linear transformations, equivalence relations, metric concepts. Prerequisites: MATH 333 or 334 with a minimum grade of C.

The *syllabus/schedule are subject to change.*

Student Learning Outcomes: Upon successful completion of this course a student will:

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- Solve a given system of linear system and describe the solution set.

- Demonstrate a thorough knowledge of vector spaces and subspaces, linear independence, basis, dimension and rank.

- Understand linear transformations, change of basis and similarity.

- Apply matrix factorization techniques such as LU factorization.

- Calculate vector norms and matrix norms.

- Use decomposition theorems such as Range-Null Space, singular value decomposition.

- Identify different types of matrices and forms such as positive definite, normal and Jordan form.

- Use matrix theory in applications such as least squares.

COURSE REQUIREMENTS

Minimal Technical Skills Needed

Access MyLeo online.

Attendance and participation

Online attendance is required. Your log in, video viewing, homework and participation in our course in D2L determine online participation in this course.

Instructional Methods

Instruction is done through video lecture. Links to videos will be uploaded to MyLeo-online.
A free software will be used to illustrate examples.

GRADING

Final grades in this course will be based on the following scale:

Midterm Exams:	50%
Home work:	20%

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Final Exam:	30%

Total:	100%

A = 90%-100%
B = 80%-89%
C = 70%-79%
D = 60%-69%
F = 59% or Below

Exams: There will be two midterm exams and a comprehensive final exam for this course. All exams will be proctored remotely using Zoom.

Exam 1: Thursday September 30th from 5:00 – 6:30 pm.

Exam 2: Thursday November 4th   from 5:00 – 6:30 pm.

Final Exam: Thursday December 9th 2021 , 5 – 7 pm.

Home Work:

Please submit the home work in pdf format. Write clearly and keep space between lines. Save the file as firstname_lastname_HW#.pdf

At end of each chapter, homework problems will be assigned and will be graded. Homework will be assigned through "Assignments" in MyLeo-online. You will be able to upload a pdf file through this link. The assignment that you submit must be your own work. Plagiarism is prohibited.

Late Home Work: It is essential that you submit your homework by the due date. Late homework will not be graded.

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

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

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

YouSeeU Virtual Classroom Requirements:
https://support.youseeu.com/hc/en-us/articles/115007031107-Basic-System-Requirements

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 method to deal with these inevitable problems. These methods might include the availability of a backup PC at home or work, the temporary use of a computer at a friend's home, the local library, office service companies, Starbucks, a TAMUC campus open computer lab, etc.

COMMUNICATION AND SUPPORT

If you have any questions or are having difficulties with the course material, please contact your Instructor.

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 AND UNIVERSITY PROCEDURES/POLICIES

Course Specific Procedures/Policies

You are expected to attend all classes.

The syllabus/schedule are subject to change.

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

Student Conduct

Appropriate classroom behavior is required to attend this class.

All cell phones must be put on silent during class.

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

Students should also consult the Rules of Netiquette for more information regarding how to interact with students in an online forum:
https://www.britannica.com/topic/netiquette

TAMUC Attendance

For more information about the attendance policy please visit the Attendance webpage and Procedure 13.99.99.R0.01.
http://www.tamuc.edu/admissions/registrar/generalInformation/attendance.aspx

http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/academic/13.99.99.R0.01.pdf

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 the following procedures:

Undergraduate Academic Dishonesty 13.99.99.R0.03

http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/undergraduates/13.99.99.R0.03UndergraduateAcademicDishonesty.pdf

Graduate Student Academic Dishonesty 13.99.99.R0.10

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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
Phone (903) 886-5150 or (903) 886-5835
Fax (903) 468-8148
Email: studentdisabilityservices@tamuc.edu

Website: Office of Student Disability Resources and Services

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

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

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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.

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

COURSE OUTLINE / CALENDAR

Weekly Schedule

Week	Topic(section)
1	Linear systems
2	Matrix-algebra
3-5	Vector Spaces
6-9	Norms, Inner products and Orthogonality
10	Determinants
11-13	Eigenvalues and eigenvectors
14-15	Perron-Frobenius theory

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