Course Syllabus – Fall 25

Course Modality and Expectations

Instructional Mode	Traditional.
Course Platform	Lecture slides and assignments/assessments will be posted on eLearning. Class will meet face to face. Office hours will be in person or through MS Teams phone call.
Expectations	Students are expected to access the course on eLearning and go over the slides prior to class time.
Student Resources	A variety of resources are available to help students to obtain counseling, health care, and academic support.

Course Information

Course Number/Section ENGR 2300_004, 003
Course Title Linear Algebra for Engineers
Term Fall 2025

***Days & Times*:**

004 Lectures: Tuesdays/Thursdays: 8:30am-9:15am
Labs: Thursdays: 12:00pm – 12:50pm

003 Lectures: Tuesdays/Thursdays: 2:30pm-3:45pm
Labs: Tuesdays: 4:00pm – 4:50pm

Census date: Wed. September 10 Drop date: Mon. November 10.
Midterm grade posted Sat. October 18 Last Day of classes: Tues. Dec. 9.

Professor Contact Information

Professor Rabah Mezenner, PhD
Office Phone 972-883-6871
Email Address rabah.mezenner@utdallas.edu
Office Location ECSN 3.920
Office Hours Mondays/Wednesdays 11:30am -12:30pm FF or MS Teams calls.
Tuesdays/Thursdays: 10:00am - 12:00pm FF or MS Teams calls.

Course Pre-requisites, Co-requisites, and/or Other Restrictions

MATH 2414 or MATH 2419.

Students must be capable of accessing the course on eLearning and submit assignments and assessments online IN and/or OUT of class time.

Course Description

ENGR 2300 Linear Algebra for Engineers (3 semester credit hours) Matrices, vectors, linear systems of equations, Gauss-Jordan elimination, LU factorization and rank. Vector spaces, linear dependence/independence, basis, and change of basis. Linear transformations and matrix representation; similarity, scalar products, orthogonality, Gram-Schmidt procedures, and QR factorization. Determinants, eigenvalues, eigenvectors, and diagonalization. Introduction to problem solving using MATLAB. This course includes a required laboratory. (2-1) S

Student Learning Objectives/Outcomes

1. Solve Ax = b for linear systems by elimination
2. Deduce basis and dimension for the four fundamental subspaces.
3. Compute a determinant and understand its properties.
4. Compute eigenvalues and eigenvectors
5. Explore engineering applications which build on the concepts of linear algebra presented in the course.

Required Textbooks and Materials

Elementary Linear Algebra, Eighth Edition, R. Larson, Cengage Learning, 2017, ISBN: 978-1-305-65800-4

https://www.cengage.com/c/elementary-linear-algebra-8e-larson/9781305658004/?filterBy=Student

Students will also use MATLAB computer software to complete some assignments. Students are responsible for accessing this software using a university license or a personal copy.

Suggested Course Materials

Larson Linear Algebra Website: http://www.larsonlinearalgebra.com
D. Lay, S. Lay, J. McDonald, Linear Algebra and its Applications, Pearsons, 5th Edition

Other materials as posted on eLearning.

<u>Assignments & Academic Calendar</u> : Refer to eLearning for due dates of assignments.

WEEK starting	TOPIC/LECTURE	Lab	Quiz/HW/EX assigned
1 Aug. 25	Introduction & syllabus, Lect. 1.1: System of Linear Equations Lect. 1.2: Gauss-Jordan Elimination	No lab	Quiz 1
2 Sep. 1	Lect. 1.2/1.3 Applications of systems of equations Lect. 2.1 Operations with matrices	Lab 1	HW 1
3 Sep. 8	Lect. 2.2 Properties of Matrix Operations Lect. 2.3 Inverse of a Matrix	Lab 2	Quiz 2
4 Sept. 15	Lect. 2.4 Elementary Matrices and LU factorization Lect. 3.1 Determinants	Lab 3	HW 2
5 Sept. 22	Lect. 3.2 Determinant and Elementary operations Lect. 3.3: Properties of Determinants	Lab 4	Quiz 3
6 Sept. 29	Lect. 3.4: Application/Cramer's rule Lect. 4.1: Vectors	Lab 5	HW 3 **Exam 1: 10/03,04**
7 Oct. 6	Lect. 4.2 Vector spaces Lect. 4.3 Subspaces	Lab 6	HW 4a
8 Oct. 13	Lect. 4.4 Spanning sets and Linear Independence Lect. 4.5 Basis and Dimension	Lab 7	Quiz 4
9 Oct. 20	Lect. 4.6 Rank of a matrix and systems of equations. Lect. 4.7 Change of basis	Lab 8	HW 4b
10 Oct. 27	Lect. 5.1 Length and Dot Product in Rn Lect. 5.2 Inner Product Spaces	Lab 9	Quiz 5 Quiz ML
11 Nov. 3	Lect. 5.3 Orthonormal Bases, Gram-Schmidt Process Lect. 5.4 Least Squares Analysis	Lab 10	HW 5 Project
12 Nov. 10	Lect. 7.1 Eigenvalues and Eigenvectors Lect. 7.2 Diagonalization	Lab 11	Quiz 7 **Exam 2: 11/14,15**

WEEK starting	TOPIC/LECTURE	Lab	Quiz/HW/EX assigned
13 Nov. 17	Lect. 7.3 Symmetric matrices Lect. 7.4 Applications of e-values and e-vectors	Lab 12	HW 7
14 Nov. 24	Fall Break		
15 Dec. 1	Lect. 6.1 Intro to Linear Transformations Lect. 6.2 Kernel and Range of Linear Transformations. Lect. 6.3 Matrices for Lin. Transform/change of basis.	Lab 13	Quiz 6 HMW 6
16 Dec. 8	Lect. 6.4 Similarity/Review Final Exam (Dec. 11-16) in Testing Center	Lab 14	 By appt.
17 Dec. 15	Course grades posted		

Grading Policy

Quizzes (8x2%)	16%	HMWKs (8x3%)	24%
Project	5%	Exams (Take home:2x10%)	20%
Final Exam (Testing Center)	35%		

The letter grades will be assigned as follows:

97+	A+	87+	B+	77+	C+	67+	D+	
93+	A	83+	B	73+	C	62+	D	
90+	A-	80+	B-	70+	C-	57+	D-	< 57 F

Course & Instructor Policies

Make-up exams

No make-up exams will be allowed except for a documented extended medical condition or family emergency. University policy will be adhered to regarding absences due to illness, religious holidays, etc. Planned absences should be communicated to the instructor as soon as possible.

The University of Texas at Dallas is committed to providing reasonable accommodations for all persons with disabilities. The syllabus is available in alternate formats upon request. If you are seeking classroom accommodations under the Americans with Disabilities Act (2008), you are required to register with the AccessAbility Resource Center, located in the Administration Building (AD), Suite 2.224. Their phone number is 972-883-2098, email: accessability@utdallas.edu and website

is https://accessability.utdallas.edu(opens in a new tab) . To receive academic accommodations for this class, please obtain the proper AccessAbility Resource Center letter of accommodation and meet with me at the beginning of the semester.

No accommodation will be given without approval from ARC and timely discussion with the instructor.

Extra Credit
There is no curved grading or extra credit assignments. There will be bonus opportunities available weekly for a limited time to encourage attendance and/or course access. They will be added to the final exam score and may add up to 2+ points to your course grade. Also, the course evaluation bonus will be used to round up the course grade to the nearest point.

Late Work
Late homeworks and quizzes are accepted for a limited time with a late penalty of up to 30 points.

Class Participation

Regular class participation is expected regardless of course modality. Students who fail to participate in class regularly are inviting scholastic difficulty. **I expect students to be attentive during class and to actively participate in lecture discussions and reviews.** It also includes engaging with others during practice exercises.

Successful participation is defined as consistently adhering to university requirements, as presented in this syllabus. Failure to comply with these University requirements is a violation of the Student Code of Conduct.

Class Recordings

Students are expected to follow appropriate University policies and maintain the security of passwords used to access recorded lectures. Unless the Office of Student AccessAbility has approved the student to record the instruction, students are expressly prohibited from recording any part of this course. **Recordings may not be published, reproduced, or shared with those not in the class, or uploaded to other online environments** except to implement an approved Office of Student AccessAbility accommodation. Failure to comply with these University requirements is a violation of the Student Code of Conduct.

The instructor may record meetings of this course. These recordings will be made available to all students registered for this class if the intent is to supplement the classroom experience. If the instructor or a UTD school/department/office plans any other uses for the recordings, consent of the students identifiable in the recordings is required prior to such use unless an exception is allowed by law. Failure to comply with these University requirements is a violation of the Student Code of Conduct.

Class Materials

The instructor may provide class materials that will be made available to all students registered for this class as they are intended to supplement the classroom experience. These materials may be downloaded during the course; however, these **materials are for registered students' use only. Classroom materials may not be reproduced or shared with those not in class or uploaded to other online environments** except to implement an approved Office of Student AccessAbility accommodation. Failure to comply with these University requirements is a violation of the Student Code of Conduct.

Comet Creed

This creed was voted on by the UT Dallas student body in 2014. It is a standard that Comets choose to live by and encourage others to do the same:

"As a Comet, I pledge honesty, integrity, and service in all that I do."

Academic Support Resources

The information contained in the following link lists the University's academic support resources for all students.

Please go to Academic Support Resources webpage for these policies.

UT Dallas Syllabus Policies and Procedures

The information contained in the following link constitutes the University's policies and procedures segment of the course syllabus.

Please go to UT Dallas Syllabus Policies webpage for these policies.

The descriptions and timelines contained in this syllabus are subject to change at the discretion of the Professor.