

ENGR 2300 Course Syllabus –University of Texas at Dallas

Course: ENGR 2300 –Linear Algebra for Engineers, Spring 2024

Class Schedule and Meeting Rooms:

Section 002 – **Monday and Wednesday, 8:30-9:45 AM, FO 2.404**

Problem solving/lab session: **Monday, 4:00-4:50 PM, SCI 3.230**

Instructor: **Dr. Amir Khoobroo** email: amir.khoobroo@utdallas.edu

Office: **ECSN 4.312** Office Hours: **By Appointment**

Website: www.elearning.utdallas.edu

Teaching Assistant:

TBD

Email: **TBD**

Office: **TBD**

Course Pre-requisite/ Co- requisite: Math 2414 or Math 2419

Course Description:

The course would cover 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, scalar products, Orthogonality, Determinants, eigenvalues and eigenvectors. Introduction to problem solving using MATLAB. Introduction to complex numbers. This course includes a required laboratory. Credit cannot be received for both courses, [ENGR 2300](#) and [MATH 2418](#).

Student Learning Objectives/Outcomes:

- Solve $Ax = b$ for square systems by elimination
- Deduce Basis and Dimension for the four fundamental subspaces
- Compute determinants and understand its properties
- Compute eigenvalues and eigenvectors
- Explore engineering applications which build on the concepts of linear algebra presented in the course.

Required Textbook:

R. Larson “Elementary Linear Algebra” 8th Edition.

References (Optional):

- 1- *D. Hill, D. Zitarelli, Linear Algebra Labs with MATLAB, 3rd Edition.*
- 2- *S. Leon, linear Algebra with Applications, prentice hall, 9th Edition.*

Software Requirements:

During this course you will use “MATLAB® to solve some Homework problems. You can use any of the methods mentioned below to access the software:

- 1- MATLAB is available on most of the ECS lab computers on campus.
- 2- You can request personal computer installation here: <http://www.utdallas.edu/oit/howto/matlab/>
- 3- You can buy the student version for \$49 by following the link below:
http://www.mathworks.com/academia/student_version/

ENGR 2300 Class Schedule, Sections 002, Spring 2024:

Week	Class #	Class Dates	Topic
1	--	January 15	MLK Holiday – No Class
	1	January 17	Lecture 1: Chapter 1 – HW1 Assigned - Syllabus discussion
	--	January 15	No Problem Solving/Lab Session
2	2	January 22	Lecture 2: Chapter 1
	3	January 24	Lecture 3: Chapter 2 – HW2 Assigned
	PS1	January 22	Problem Solving 1
3	4	January 29	Lecture 4: Chapter 2– HW3 Assigned
	5	January 31	Lecture 5: Chapter 2
	PS2	January 29	Problem Solving 2
4	6	February 5	Lecture 6: Chapter 2 and 3– HW4 Assigned
	7	February 7	Lecture 7: Chapter 3
	PS3	February 5	Problem Solving 3
5	8	February 12	Lecture 8: Chapter 3– HW5 Assigned
	9	February 14	Lecture 9: Chapter 3 and 4
	PS4	February 12	Problem Solving 4
6	10	February 19	Test 1 review Session
	11	February 21	EXAM 1
	PS5	February 19	Problem Solving 5
7	12	February 26	Lecture 10: Chapter 4– HW6 Assigned
	13	February 28	Lecture 11: Chapter 4
	PS6	February 26	Problem Solving 6
8	14	March 4	Lecture 12: Chapter 4- HW7 Assigned
	15	March 6	Lecture 13: Chapter 4
	PS7	March 4	Problem Solving 7
--	Spring Break –No Class		
9	16	March 18	Lecture 14: Chapter 4 - HW8 Assigned
	17	March 20	Lecture 15: Chapter 4 and 5
	PS8	March 18	Problem Solving 8
10	18	March 25	Lecture 16: Chapter 5- HW9 Assigned
	19	March 27	Lecture 17: Chapter 5
	PS9	March 25	Problem Solving 9
11	20	April 1	Lecture 18: Chapter 5- HW10 Assigned
	21	April 3	Test 2 review Session
	PS10	April 1	Problem Solving 10
12	22	April 8	EXAM 2
	23	April 10	Lecture 19: Chapter 6
	PS11	April 8	Problem Solving 11
13	24	April 15	Lecture 20: Chapter 6 - HW11 Assigned
	25	April 17	Lecture 21: Chapter 6 and 7
	PS12	April 15	Problem Solving 12
14	26	April 22	Lecture 22: Chapter 7- HW12 Assigned
	27	April 24	Test 3 review Session
	PS13	April 22	Problem Solving 13
15	28	April 29	Final EXAM! Last day of Class!

NOTE: Some class lecture dates may be subject to change.

<i>Grading Policy</i>	
Exam #1	(~25%)
Exam #2	(~25%)
Exam #3	(~20%)
Homework & assignments	(~20%)
Attendance	(~10%)

Important Dates:

- Last day to drop a class without a “W”: 01/31/2024
- Last day of class: 04/29/2024

Course & Instructor Policies:

- The best and fastest way to reach me is via Emails. Please add **ENGR2300** in the subject of emails, so I can give priority to your emails.
- There will be a 10% penalty per day for late homework. **Homework will not be accepted after being solved in the problem solving session.**
- The course is taught using eLearning. The student should develop the habit of checking both eLearning and their UTD email often for assignments and announcements.
- Only emails sent from your official UTD email address or eLearning email will be considered and answered.
- Class attendance is **Mandatory** and is taken occasionally.

Field Trip Policies and Off-campus Instruction and Course Activities:

No off-campus activities in this course.

Student Conduct & Discipline:

The University of Texas System and The University of Texas at Dallas have rules and regulations for the orderly and efficient conduct of their business. It is the responsibility of each student and each student organization to be knowledgeable about the rules and regulations which govern student conduct and activities. General information on student conduct and discipline is contained in the UTD publication, *A to Z Guide*, which is provided to all registered students each academic year.

The University of Texas at Dallas administers student discipline within the procedures of recognized and established due process. Procedures are defined and described in the *Rules and Regulations, Board of Regents, The University of Texas System, Part 1, Chapter VI, Section 3*, and in Title V, Rules on Student Services and Activities of the university’s *Handbook of Operating Procedures*. Copies of these rules and regulations are available to students in the Office of the Dean of Students, where staff members are available to assist students in interpreting the rules and regulations (SU 1.602, 972/883-6391).

A student at the university neither loses the rights nor escapes the responsibilities of citizenship. He or she is expected to obey federal, state, and local laws as well as the Regents’ Rules, university regulations, and administrative rules. Students are subject to discipline for violating the standards of conduct whether such conduct takes place on or off campus, or whether civil or criminal penalties are also imposed for such conduct.

Academic Integrity:

The faculty expects from its students a high level of responsibility and academic honesty. Because the value of an academic degree depends upon the absolute integrity of the work done by the student for that degree, it is imperative that a student demonstrate a high standard of individual honor in his or her scholastic work.

Scholastic dishonesty includes, but is not limited to, statements, acts or omissions related to applications for enrollment or the award of a degree, and/or the submission as one’s own work or material that is not one’s own. As a general rule, scholastic dishonesty involves one of the following acts: cheating, plagiarism, collusion and/or falsifying academic records. Students suspected of academic dishonesty are subject to disciplinary proceedings.

Plagiarism, especially from the web, from portions of papers for other classes, and from any other source is unacceptable and will be dealt with under the university's policy on plagiarism (see general catalog for details). This course will use the resources of turnitin.com, which searches the web for possible plagiarism and is over 90% effective.

Email Use:

The University of Texas at Dallas recognizes the value and efficiency of communication between faculty/staff and students through electronic mail. At the same time, email raises some issues concerning security and the identity of each individual in an email exchange. The university encourages all official student email correspondence be sent only to a student's U.T. Dallas email address and that faculty and staff consider email from students official only if it originates from a UTD student account. This allows the university to maintain a high degree of confidence in the identity of all individual corresponding and the security of the transmitted information. UTD furnishes each student with a free email account that is to be used in all communication with university personnel. The Department of Information Resources at U.T. Dallas provides a method for students to have their U.T. Dallas mail forwarded to other accounts.

Withdrawal from Class:

The administration of this institution has set deadlines for withdrawal of any college-level courses. These dates and times are published in that semester's course catalog. Administration procedures must be followed. It is the student's responsibility to handle withdrawal requirements from any class. In other words, I cannot drop or withdraw any student. You must do the proper paperwork to ensure that you will not receive a final grade of "F" in a course if you choose not to attend the class once you are enrolled.

Student Grievance Procedures:

Procedures for student grievances are found in Title V, Rules on Student Services and Activities, of the university's *Handbook of Operating Procedures*.

In attempting to resolve any student grievance regarding grades, evaluations, or other fulfillments of academic responsibility, it is the obligation of the student first to make a serious effort to resolve the matter with the instructor, supervisor, administrator, or committee with whom the grievance originates (hereafter called "the respondent"). Individual faculty members retain primary responsibility for assigning grades and evaluations. If the matter cannot be resolved at that level, the grievance must be submitted in writing to the respondent with a copy of the respondent's School Dean. If the matter is not resolved by the written response provided by the respondent, the student may submit a written appeal to the School Dean. If the grievance is not resolved by the School Dean's decision, the student may make a written appeal to the Dean of Graduate or Undergraduate Education, and the dean will appoint and convene an Academic Appeals Panel. The decision of the Academic Appeals Panel is final. The results of the academic appeals process will be distributed to all involved parties.

Copies of these rules and regulations are available to students in the Office of the Dean of Students, where staff members are available to assist students in interpreting the rules and regulations.

Incomplete Grade Policy:

As per university policy, incomplete grades will be granted only for work unavoidably missed at the semester's end and only if 70% of the course work has been completed. An incomplete grade must be resolved within eight (8) weeks from the first day of the subsequent long semester. If the required work to complete the course and to remove the incomplete grade is not submitted by the specified deadline, the incomplete grade is changed automatically to a grade of **F**.

Disability Services:

The goal of Disability Services is to provide students with disabilities educational opportunities equal to those of their non-disabled peers. Disability Services is located in room 1.610 in the Student Union. Office hours are Monday and Thursday, 8:30 a.m. to 6:30 p.m.; Tuesday and Wednesday, 8:30 a.m. to 7:30 p.m.; and Friday, 8:30 a.m. to 5:30 p.m.

The contact information for the Office of Disability Services is:

The University of Texas at Dallas, SU 22
PO Box 830688
Richardson, Texas 75083-0688
(972) 883-2098 (voice or TTY)

Essentially, the law requires that colleges and universities make those reasonable adjustments necessary to eliminate discrimination on the basis of disability. For example, it may be necessary to remove classroom prohibitions against tape recorders or animals (in the case of dog guides) for students who are blind. Occasionally an assignment requirement may be substituted (for example, a research paper versus an oral presentation for a student who is hearing impaired). Classes enrolled students with mobility impairments may have to be rescheduled in accessible facilities. The college or university may need to provide special services such as registration, note-taking, or mobility assistance.

It is the student's responsibility to notify his or her professors of the need for such an accommodation. Disability Services provides students with letters to present to faculty members to verify that the student has a disability and needs accommodations. Individuals requiring special accommodation should contact the professor after class or during office hours.

Religious Holy Days:

The University of Texas at Dallas will excuse a student from class or other required activities for the travel to and observance of a religious holy day for a religion whose places of worship are exempt from property tax under Section 11.20, Tax Code, Texas Code Annotated. The student is encouraged to notify the instructor or activity sponsor as soon as possible regarding the absence, preferably in advance of the assignment. The student, so excused, will be allowed to take the exam or complete the assignment within a reasonable time after the absence: a period equal to the length of the absence, up to a maximum of one week. A student who notifies the instructor and completes any missed exam or assignment may not be penalized for the absence. A student who fails to complete the exam or assignment within the prescribed period may receive a failing grade for that exam or assignment.

If a student or an instructor disagrees about the nature of the absence [i.e., for the purpose of observing a religious holy day] or if there is similar disagreement about whether the student has been given a reasonable time to complete any missed assignments or examinations, either the student or the instructor may request a ruling from the chief executive officer of the institution, or his or her designee. The chief executive officer or designee must take into account the legislative intent of TEC 51.911(b), and the student and instructor will abide by the decision of the chief executive officer or designee.

These descriptions and timelines are subject to change at the discretion of the instructor.