Linear Algebra
Math 2700, Summer 2021 UNT

Instructor Contact

Name:	**Yingyu Zhang**
Office Hours:	**MTWR 14:00 - 15:00**
Email:	**yingyuzhang@my.unt.edu**
Lecture:	**MTWR 10:00 am - 11:50 am**
	Zoom ID: 840 589 1768
Office Hours:	**MTWR 14:00 - 15:00**
	Zoom ID: 840 589 1768

Course Description
The course covers linear equations in linear algebra, matrix algebra, determinants, vector spaces, span, independence, rank, dimension, eigenvalues and eigenvectors, and orthogonality.

Course Prerequisites: Math 1720 (Calculus II)

Text: *David Lay, Linear Algebra and Its Applications* Fourth or Fifth Edition.

Course Requirements
- Homework (10%) MTWR by 10:00 AM
- Exams (60%, 15% each) Mondays July. 12, 19, 26, and Aug.1
- Final Exam (30%) Friday Aug. 6th

Grading (no rounding)
- A: 90-100%
- B: 80-89%
- C: 70-79%
- D: 60-69%
- F: 59 and below

Grade Related Policies

Homework

Homework from the textbook will be due every day (MTWR) by 10:00 am. Late homework will not be accepted. Your lowest 2 homework score will be dropped automatically to make up for illness, technology problems, and/or family challenges.

Please Scan your written work and upload ONE single PDF file; If you submit more than one file, only the first will be grated. You will need an appropriate scanner app (like CamScanner, or GenuisScan). Sections and problems must be submitted in the correct order, right-side up, with margins (blank space) of 1.5 inches around each problem to accommodate online comments from the grader. Homework that is difficult to read will earn a zero score. The back of the book contains hints, not solutions, to problems: your solution must contain more detail than in the back of the book or any solution guide. Copying the hint from the back of the book will earn little or no credit. Right answer for the wrong reasons (or not enough work shown) may earn a zero score.

Exams

There will be **no** make-up for exams in this course. If you miss a quiz or an exam, you will receive a zero for the quiz or the exam. However, if you miss an exam, but have a university excused absence according to UNT Policy 06-039 (https://policy.unt.edu/policy/06-039) and provide documentation within 48 hours of the missed exam, then you can replace the zero with the final exam grade.

Extra Credit

There will be no extra credit during the semester, except possibly an extra problem on an exam. You must complete the assigned work on time. Do not expect to be able to do some extra work to help your grade either before or after the final exam.

Syllabus Change Policy

The instructor reserves right to change any information set in the syllabus as appropriate.

Technical Requirements

You will need a computer/laptop with webcam. When using zoom for this class, you are required to login with your UNT ID and give your full name as participant. In the event of any unexpected server outage or any unusual technical difficulty which prevents a student from completing a time sensitive activity, the student should immediately report any problems to the instructor and contact the UNT StudentHelp Desk: helpdesk@unt.edu or 940.565.2324.

Academic Integrity

According to UNT Policy 06.003, Student Academic Integrity, academic dishonesty occurs when students engage in behaviors including, but not limited to cheating, fabrication, facilitating academic dishonesty, forgery, plagiarism, and sabotage. A finding of academic dishonesty may result in a range of academic penalties or sanctions ranging from admonition to expulsion from the University. Anyone caught cheating will receive an F for the course. You will also be required to submit an academic integrity statement for each exam.

Disabilities

UNT makes reasonable academic accommodation for students with disabilities.Students seeking accommodation must first register with the Office of Disability Accommodation(ODA) to verify their eligibility. If a disability is verified, the ODA will provide a student with an accommodation letter to be delivered to faculty to begin a private discussion regarding specific course needs. Students may request accommodations at any time, however, ODA notices of accommodation should be provided as early as possible in the semester to avoid any delay in implementation. Note that students must obtain a new letter of accommodation for every semester and must meet with each faculty member prior to implementation in each class.

UIT Help Desk: UIT Student Help Desk site(http://www.unt.edu/helpdesk/index.htm)
Email: helpdesk@unt.edu
Phone: 940-565-2324
In Person: Sage Hall, Room 130
Laptop Checkout: 8am-7pm
For additional support, visit Canvas Technical Help (https://community.canvaslms.com/docs/DOC-10554-4212710328)

Essential sections will be covered:

Chapter 1

- 1.1 Systems of Linear Equations
- 1.2 Row Reduction and Echelon Forms
- 1.3 Vector Equations
- 1.4 The Matrix Equation Ax = b
- 1.5 Solution Sets of Linear Systems
- 1.7 Linear Independence
- 1.8 Introduction to Linear Transformation

Chapter 2

- 2.1 Matrix Operations
- 2.2 The Inverse of a Matrix
- 2.3 Characterizations of Invertible Matrices
- 2.8 Subspaces *
- 2.9 Dimension and Rank *

Chapter 3

- 3.1 Introduction to Determinants
- 3.2 Properties of Determinants

Chapter 4

- 4.1 Vector Spaces and Subspaces
- 4.2 Null Spaces, Column Spaces, and Linear Transformations
- 4.3 Linearly Independent Sets; Bases
- 4.4 Coordinate System
- 4.5 The Dimension of a Vector Space
- 4.6 Rank
- 4.7 Change of Basis *

Chapter 5

- 5.1 Eigenvectors and Eigenvalues
- 5.2 The Characteristic Equation
- 5.3 Diagonalization
- 5.4 Eigenvectors and Linear Transformations *

Chapter 6

- 6.1 Inner Product, Length, and Orthogonality
- 6.2 Orthogonal Sets
- 6.3 Orthogonal Projections