

MATH 2700 Sec. 001
Linear Algebra and Vector Geometry-Fall 2025
TR 3:30pm-4:50pm Room: CHIL 245

Instructor Contact

Name: Dr. Shuang Liu (she/her)

Office Location: GAB 440H

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Communication:

1. **Use the Canvas Inbox.** If you email me, **I only respond to UNT student email addresses.**
2. Your communication with me and your classmates is expected to be in line with [UNT's General Online Communication Guidelines](#).
3. Email is the best way to contact me. While I try to reply as soon as possible to all emails, please allow me **two (2) business days before expecting a response.**

Office Hours: Tuesday: 1pm-3pm; **or** by appointment.

If above office hours are not available to you, please send me an email (**using the Canvas Inbox**) to set up an appointment outside of office hour times. Office hours are for help with specific problems or for answering questions about the course or its content, they are **NOT** for teaching the course material.

Course Details

Textbook: The textbook is Linear Algebra and Its Applications by David Lay, Stephen Lay, Judi MacDonald

Course Description: The study of linear equations, matrix algebra, determinants, vector spaces, eigenvalues and eigenvectors, and orthogonality.

Course Prerequisites: Math 1720

Grade Policy

Homework (weekly assignments, problems posted on Canvas) – 25%

Exams (4 exams: 3 midterms and 1 final, lowest exam score dropped) – 75%

- A: [90%- ∞) (Outstanding, excellent work. The student performs well above the minimum criteria.)
- B: [80%-90%) (Good, impressive work. The student performs above the minimum criteria.)
- C: [70%-80%) (Solid, college-level work. The student meets the criteria of the assignment.)

- D: [60%-70%) (Below average work. The student fails to meet the minimum criteria.)
- F: [0%,60%) (Sub-par work. The student fails to complete the assignment.)

There will be no curves.

Homework: No late homework will be accepted for any reason. Homework will be assigned each week on Canvas and will typically be due on Tuesdays. You will be required to submit homeworks on Canvas. Homeworks need to be submitted in a single pdf file. Your one lowest homework score will be dropped at the end of the semester.

Calculators: No calculators will be permitted during Exam 1. Scientific and basic graphing calculators (like a TI-83) will be permitted for exams 2, 3, and the final. TI-N'Spires, TI 89's, TI 92's or any other utility with alphanumeric/CAS capabilities ARE NOT permitted during exams.

Exams: There will be 3 midterm exams and a comprehensive final exam. These exams will all be in person. Actual exams dates and content will be announced in class, usually at least two weeks before the exam date. The tentative exam dates are Thursday 9/18, Thursday 10/16, and Thursday 11/20. Your lowest exam score will be dropped at the end of the semester.

- No hats, caps, hoodies, or headphones may be worn during exams.
- Do not share any materials (pencils, calculators, etc.) during an exam.
- Turn off and put away all electronics during exams.
- If you think that your work has been graded incorrectly, write a legible explanation of what you want re-graded and why on a separate piece of paper and turn this in to me with your exam within one week of receiving the exam back.

Final Exams: Tuesday, December 9, 2025 at CHIL 245.

<https://registrar.unt.edu/exams/final-exam-schedule/fall.html>

Make-up Policy: Make up exams will not be given for any reason after the fact. If you miss a midterm exam (for any reason) you will get a 0 for that exam and it will be your dropped test score. You can take a test early if you need to. You must request for this accommodation via email at least one week prior to the day you wish to take the early exam.

Class Policy

Attendance: Attendance is important and required. Students are expected to attend the entirety of class meetings. Students are responsible for all information given in class, regardless of his/her attendance. If you miss a lecture, it is your responsibility to learn the missed material on your own. You can do this by filling in the class notes using the textbook as a guide. **The instructor will NOT repeat whole lectures or offer personal lessons in office hours or email.**

There will occasionally be opportunities to earn extra credit during class. If you miss one of these days, for any reason, you will not be able to earn these points. If it is important to you to participate in all the extra credits which will be available this semester, you need to plan to attend every class.

Class Notes: An outline of the class notes will be posted on Canvas, we will go over the concepts and solve the examples in class. If you print paper copies, I recommend that you print and bring several days' worth of notes to each class in case we get ahead of schedule. Completed notes will not be posted on Canvas.

Student Behavior: Appropriate behavior is expected of all students taking this course. You are expected to arrive on time and stay for the entire class period. If you must arrive late or leave early, please do so as quietly as possible. Silence and put away all pagers, cell phones, and laptops during class. Take off your headphones. Do not talk (or whisper) to your classmates during class, it is extremely distracting. If you have a question about the material, please speak up and ask – if you are wondering about something during the lecture you are probably not the only one!

Academic Dishonesty

Cheating will not be tolerated. Any student caught cheating on an exam will receive a “0” and a report will be filed with the Office of Academic Integrity. You cannot replace an exam score of “0” if you received it due to cheating.

Start Working Now

The best way to ensure you pass this course with the grade you desire is to work consistently throughout the semester. In mathematics, course topics always build one upon the other which makes it very difficult to catch up later if you fall behind. If you require a certain grade in this course because it is your last semester, your financial aid depends on it, your scholarship depends on it, or your parent/guardian has threatened to harm you in some manner, then do yourself a favor and start studying right away. I will not entertain any pleas for extra credit, requests for “bumping” of grades, or offers to do additional work at the end of the semester.

Math Lab

The Math Lab provides drop-in tutoring in Sage 130. Math Lab tutors can help you with homework problems. (They will not check your homework or redo lectures.) Check their website for specific times when Linear Algebra tutors are available. The Learning Center provides online, one-on-one, drop-in, and group tutoring. They also offer academic coaching and workshops on various studying and learning skills. Contact them in Sage 170 or learningcenter.unt.edu if you're interested in any of these services.

ADA Policy

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 one's specific course needs. Students may request accommodation 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 reasonable accommodation for every semester and must meet with each faculty member prior to implementation in each class. Students are strongly encouraged to deliver letters of reasonable accommodation during faculty office hours or by appointment. Faculty members have the authority to ask students to discuss such letters during their designated office hours to protect the privacy of the student. For additional information see the ODA website (<https://disability.unt.edu/>).

Syllabus Change Policy

I reserve the right to amend, append, or otherwise make changes to this syllabus, should the need arise. Any changes will be posted as an Announcement in Canvas.

Schedule

I reserve the right to change this schedule as necessary throughout the semester. You are still responsible for being aware of any changes I announce in class even if you were not present.

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
8/18 First day of class	8/19 Introduction S1.1: Systems of Linear Equations	8/20	8/21 S1.1: Systems of Linear Equations S1.2: Row Reduction and Echelon Forms	8/22 Last day to add a class
8/25	8/26 S1.3: Vector Equations S1.4: Matrix Equations	8/27	8/28 S1.4: Matrix Equations S1.5: Solution Sets of Linear Systems	8/29 Day before last day to drop without W
9/1 Labor Day – No class	9/2 S1.7: Linear Independence S1.8 – 1.9: Linear Transformations	9/3	9/4 S1.8 – 1.9: Linear Transformations S1.6: Applications of Linear Systems	9/5
9/8	9/9 S1.6: Applications of Linear Systems S1.10: Linear Models	9/10	9/11 S1.10: Linear Models MATLAB S2.1: Matrix Operations	9/12
9/15	9/16 S2.2: The Inverse of a Matrix S2.3: Invertible Matrices	9/17	9/18 Exam 1 (Chapter 1)	9/19
9/22	9/23 S2.4: Partitioned Matrices S2.5: Matrix Factorizations	9/24	9/25 S2.8: Subspaces S2.9: Dimension and Rank	9/26 Last day to change to pass/no pass
9/29	9/30 S3.1: Determinants S3.2: More on Determinants	10/1	10/2 S3.3: Cramer's Rule S4.1: Vector Spaces and Subspaces	10/3

10/6	10/7 S4.3: Linear Independent Sets; Bases S4.4: Coordinate Systems	10/8	10/9 S4.5: Dimension	10/10
10/13	10/14 S4.7: Signal Processing S5.1: Eigenvectors and Eigenvalues	10/15	10/16 Exam 2 (Chapters 2-4)	10/17
10/20	10/21 S5.1: Eigenvectors and Eigenvalues S5.2: The Characteristic Equation	10/22	10/23 S5.3: Diagonalization	10/24
10/27	10/28 S5.5: Complex Eigenvalues	10/29	10/30 S5.6 Dynamical Systems	10/31
11/3	11/4 S5.7 Applications to Differential Equations	11/5	11/6 S5.9 Applications to Markov Chains	11/7 Last day to drop with a grade of W
11/10	11/11 S6.1: Inner Product, Length, and Orthogonality S6.2: Orthogonal Sets	11/12	11/13 S6.3 Orthogonal Projections S6.4: The Gram-Schmidt Process	11/14
11/17	11/18 S6.5 Least Squares, Review for Exam 3	11/19	11/20 Exam 3 (Chapters 5-6)	11/21

11/24 Thanksgiving Break	11/25 Thanksgiving Break	11/26 Thanksgiving Break	11/27 Thanksgiving Break	11/28 Thanksgiving Break
12/1	12/2 Review for the Final Exam	12/3	12/4 Review for the Final Exam	12/5 Reading day (No class)

Summary of Key Dates – Fall 2025:

August 18, Monday

Classes begin.

August 22, Friday

Last day to add/swap a class.

August 29, Friday

Last day to drop a course without a W

September 26, Friday

Last day to change to pass/no pass

November 7, Friday

Last day for a student to drop a course or all courses with a grade of W

November 8, Saturday

Beginning this date, a student may request a grade of “I”, incomplete, a non-punitive grade given only if a student (1) is passing, (2) has justifiable reason why the work cannot be completed on schedule; and (3) arranges with the instructor to complete the work.

December 5, Friday

Reading day; no class

December 6, Saturday – December 12, Friday

Final examinations. Term ends.

Getting Help

Technical Assistance:

Part of working in the online environment involves dealing with the inconveniences and frustration that can arise when technology breaks down or does not perform as expected. Here at UNT we have a Student Help Desk that you can contact for help with Canvas or other technology issues.

UIT Help Desk: [UIT Student Help Desk](http://www.unt.edu/helpdesk/index.htm) (<http://www.unt.edu/helpdesk/index.htm>)

Email: helpdesk@unt.edu Phone: 940-565-2324 In Person: Sage Hall, Room 130

Canvas Technical Requirements: [Canvas Technical Requirements](https://clear.unt.edu/supported-technologies/canvas/requirements)

(<https://clear.unt.edu/supported-technologies/canvas/requirements>)

Additional Canvas Support: [Canvas Technical Help](https://community.canvaslms.com/docs/DOC-10554-4212710328)

(<https://community.canvaslms.com/docs/DOC-10554-4212710328>)

Student Support Services: UNT provides mental health resources to students to help ensure there are numerous outlets to turn to that wholeheartedly care for and are there for students in need, regardless of the nature of an issue or its severity. Listed below are several resources on campus that can support your academic success and mental well-being:

- [Student Health and Wellness Center](https://studentaffairs.unt.edu/student-health-and-wellness-center)
(<https://studentaffairs.unt.edu/student-health-and-wellness-center>)
- [Counseling and Testing Services](https://studentaffairs.unt.edu/counseling-and-testing-services)
(<https://studentaffairs.unt.edu/counseling-and-testing-services>)
- [UNT Care Team](https://studentaffairs.unt.edu/care) (<https://studentaffairs.unt.edu/care>)
- [UNT Psychiatric Services](https://studentaffairs.unt.edu/counseling-and-testing-services/services/individual-counseling)
- [Individual Counseling](https://studentaffairs.unt.edu/counseling-and-testing-services/services/individual-counseling)
(<https://studentaffairs.unt.edu/counseling-and-testing-services/services/individual-counseling>)

Other student support services offered by UNT include:

- [Registrar](https://registrar.unt.edu/registration) (<https://registrar.unt.edu/registration>)
- [Financial Aid](https://financialaid.unt.edu/) (<https://financialaid.unt.edu/>)
- [Student Legal Services](https://studentaffairs.unt.edu/student-legal-services) (<https://studentaffairs.unt.edu/student-legal-services>)
- [Career Center](https://studentaffairs.unt.edu/career-center) (<https://studentaffairs.unt.edu/career-center>)
- [Multicultural Center](https://edo.unt.edu/multicultural-center) (<https://edo.unt.edu/multicultural-center>)
- [Counseling and Testing Services](https://studentaffairs.unt.edu/counseling-and-testing-services)
(<https://studentaffairs.unt.edu/counseling-and-testing-services>)
- [Pride Alliance](https://edo.unt.edu/pridealliance) (<https://edo.unt.edu/pridealliance>)
- [UNT Food Pantry](https://deanofstudents.unt.edu/resources/food-pantry) (<https://deanofstudents.unt.edu/resources/food-pantry>)

UNT Policies

Academic Integrity Standards and Consequences:

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.

Cheating on tests, quizzes or final exams is a serious breach of academic standards and will be punished severely and generally result in a student failing the course. All work done on exams and quizzes must represent only the student's own work, unless otherwise stated in the directions. 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. See [Academic Integrity](#) for details on academic integrity at UNT.

Acceptable Student Behavior: Student behavior that interferes with an instructor's ability to conduct a class or other students' opportunity to learn is unacceptable and disruptive and will not be tolerated in any instructional forum at UNT. Students engaging in unacceptable behavior will be directed to leave the classroom and the instructor may refer the student to the Dean of Students to consider whether the student's conduct violated the Code of Student Conduct. The University's expectations for student conduct apply to all instructional forums, including University and electronic classroom, labs, discussion groups, field trips, etc. Visit UNT's [Code of Student Conduct](https://deanofstudents.unt.edu/conduct) (<https://deanofstudents.unt.edu/conduct>) to learn more.

ADA Policy: 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 one's 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. For additional information see the ODA website at disability.unt.edu.

Emergency Notification and Procedures: UNT uses a system called Eagle Alert to quickly notify students with critical information in the event of an emergency (i.e., severe weather, campus closing, and health and public safety emergencies like chemical spills, fires, or violence). In the event of a university closure, please refer to the UNT Learning Management System (LMS) for contingency plans for covering course materials.

[Important Notice for F-1 Students taking Distance Education Courses](#)

Federal Regulation

To read detailed Immigration and Customs Enforcement regulations for F-1 students taking online courses, please go to the [Electronic Code of Federal Regulations website](http://www.ecfr.gov/)(<http://www.ecfr.gov/>). The specific portion concerning distance education courses is located at Title 8 CFR 214.2 Paragraph (f)(6)(i)(G).

The paragraph reads:

(G) For F-1 students enrolled in classes for credit or classroom hours, no more than the equivalent of one class or three credits per session, term, semester, trimester, or quarter may

be counted toward the full course of study requirement if the class is taken on-line or through distance education and does not require the student's physical attendance for classes, examination or other purposes integral to completion of the class. An on-line or distance education course is a course that is offered principally through the use of television, audio, or computer transmission including open broadcast, closed circuit, cable, microwave, or satellite, audio conferencing, or computer conferencing. If the F-1 student's course of study is in a language study program, no on-line or distance education classes may be considered to count toward a student's full course of study requirement.

University of North Texas Compliance

To comply with immigration regulations, an F-1 visa holder within the United States may need to engage in an on-campus experiential component for this course. This component (which must be approved in advance by the instructor) can include activities such as taking an on-campus exam, participating in an on-campus lecture or lab activity, or other on-campus experience integral to the completion of this course.

If such an on-campus activity is required, it is the student's responsibility to do the following: (1) Submit a written request to the instructor for an on-campus experiential component within one week of the start of the course.

(2) Ensure that the activity on campus takes place and the instructor documents it in writing with a notice sent to the International Student and Scholar Services Office. ISSS has a form available that you may use for this purpose.

Because the decision may have serious immigration consequences, if an F-1 student is unsure about his or her need to participate in an on-campus experiential component for this course, s/he should contact the UNT International Student and Scholar Services Office (telephone 940-565-2195 or email internationaladvising@unt.edu) to get clarification before the one-week deadline.

Student Verification UNT takes measures to protect the integrity of educational credentials awarded to students enrolled in distance education courses by verifying student identity, protecting student privacy, and notifying students of any special meeting times/locations or additional charges associated with student identity verification in distance education courses. See ([UNT Policy 07-002 Student Identity Verification, Privacy, and Notification and Distance Education Courses](https://policy.unt.edu/policy/07-002) (<https://policy.unt.edu/policy/07-002>)).