

# MTH 2311 (Linear Algebra) Syllabus

Spring 2026 - Baylor University

## Instructor Information

### Instructor

Son Tu

### Email

[Son\\_Tu@baylor.edu](mailto:Son_Tu@baylor.edu)

### Office & Phone

SR 339B, [254-710-6596](tel:254-710-6596)

## General Information

### Course Description

Vectors, matrix operations, linear transformations, fundamental properties of vector spaces, systems of linear equations, eigenvalues, and eigenvectors.

### Course Schedule

MTH 2311-03 T-Th SDRICH 214 02:00 PM - 03:15 PM

### Office Hours

T, Th, F: 10:00 AM - 11:00 AM and by appointment

### Prerequisite

A grade of C or above in MTH 1322.

## Course Materials and Requirements

### Textbook

Recommended Materials: Linear Algebra and its Applications, 6th edition, by Lay, Lay, and McDonald, ISBN 9780135851203.

### Goals & Objectives

A student successfully completing this course should have a solid understanding of vectors, matrix operations, linear transformations, fundamental properties of vector spaces, systems of linear equations, eigenvalues, and eigenvectors. We will introduce the tools that we need to approach and understand each of these concepts, and see how this knowledge applies to real-world and theoretical applications.

### Attendance

Your regular attendance and participation are required to pass this course. If you are absent more than 6 times without valid reasons (e.g., severe health issues with doctor's note), you may not pass this course.

In College of Arts & Sciences Catalog (2024-2025):

"To earn course credit in the College of Arts & Sciences, **a student must attend at least 75 percent of all scheduled class meetings**. Any student who does not meet this minimal standard will automatically receive a grade of "F" in the course. Any University-related activity necessitating an absence from class shall count as an absence when determining whether a student has attended the required 75 percent of class meetings."

## Midterms

There will be **two in-class midterms** in the semester.

## Weekly Quiz

Each week, there will be a 10-15 minute quiz on the previous week's material (see schedule). No makeups, the two lowest quizzes will be dropped.

## Homework

Homework is optional.

## Final Exam

The final exam will be given on **May 13 (Wednesday) from 4:30PM - 6:30 PM** at SDRICH 214. Students must contact the instructor if there are any conflicts.

## Course Grading

Quiz (22%) + 2 midterms (24% each) + Final (30%)

A:	91-100	B-:	79-80	D+:	67-68
A-:	89-90	C+:	77-78	D:	61-66
B+:	87-88	C:	71-76	D-:	59-60
B:	81-86	C-:	69-70	F:	0-58

## Study Time

You should use 8 to 12 hours to study this course during a typical week of the semester. Consistent attendance and daily preparation are the main keys for your success in this course.

## Make-up Policy

Quizzes, and exams will NOT be made-up. If necessary (with inevitable reasons), then I can give an in-semester exam to students earlier than the exam date but NOT LATER. Missing several quizzes and homework assignments can be made up by dropping off some lowest scores.

## Calculator Policy

Calculators in any form of electronic or mechanical devices are NOT allowed in any in-class exams and quizzes.

## Tutoring

Taking tutors' help is your privilege. The mathematics department runs a '*math tutoring lab*' during the week M-F for students. See [www.baylor.edu/tutoring](http://www.baylor.edu/tutoring) for more information.

## Academic Integrity

Plagiarism or any form of cheating involves a breach of student-teacher trust. This means that any work submitted under your name is expected to be your own, neither composed by anyone else as a whole or in part, nor handed over to another person for complete or partial revision. Be sure to document all ideas that are not your own. In addition, you must not provide course materials to other students, whether individually or generally (such as online) that would enable them to gain an unfair academic advantage. Instances of plagiarism or any other act of academic dishonesty will be reported to the Honor Council and may result in failure of the course. Not understanding plagiarism is not an excuse. I expect you, as a Baylor student, to be intimately familiar with the Honor Code at: <http://www.baylor.edu/honorcode/>

## Phone policy

All phones and electronic devices (except approved calculators) must be stowed away during exams. Any device found on your desk, in your lap, etc. will result in the exam being invalidated (grade of zero), regardless of use.

## Students needing Accommodations

Any student who needs academic accommodations related to a documented disability should inform me immediately at the beginning of the semester. You are required to obtain appropriate documentation and information regarding your accommodations from the Office of Learning Accommodation (OALA). Stop by the first floor of Sid Richardson, East Wing in the Paul L. Foster Success Center or call (254) 710-3605 or email [OALA@baylor.edu](mailto:OALA@baylor.edu).

## Title IX Office

### Civil Rights Policy and Sexual and Interpersonal Misconduct Policy

Baylor University does not tolerate unlawful harassment or discrimination on the basis of sex, gender, race, color, disability, national origin, ancestry, age (over 40), citizenship, genetic information or the refusal to submit to a genetic test, past, current, or prospective service in the uniformed services, or any other characteristic protected under applicable federal, Texas, or local law (collectively referred to as Protected Characteristics).

If you or someone you know would like help related to an experience involving:

- Sexual or gender-based harassment, sexual assault, sexual exploitation, stalking, intimate partner violence, or retaliation for reporting one of these types of prohibited conduct, please visit [www.baylor.edu/titleix](http://www.baylor.edu/titleix), or contact us at (254) 710-8454, or [TitleIX\\_Coordinator@baylor.edu](mailto:TitleIX_Coordinator@baylor.edu).
- Harassment (excluding those issues listed in #1) or adverse action based on Protected Characteristics, please visit [www.baylor.edu/civilrights](http://www.baylor.edu/civilrights), or contact us at (254) 710-7100 or [Civil\\_Rights@baylor.edu](mailto:Civil_Rights@baylor.edu).

The Office of Equity and Title IX understands the sensitive nature of these situations and can provide information about available on- and off-campus resources, such as counseling and psychological services, medical treatment, academic support, university housing, and other forms of assistance that may be available. Staff members at the office can also explain your rights and procedural options. You will not be required to share your experience. **If you or someone you know feels unsafe or may be in imminent danger, please call the Baylor Police Department (254-710-2222) or Waco Police Department (9-1-1) immediately.**

Except for Confidential Resources, all University Employees are designated Responsible Employees and thereby mandatory reporters of potential sexual and interpersonal misconduct violations. Confidential Resources who do not have to report include those working in the Counseling Center, Health Center and the University Chaplain, Dr. Burt Burleson.

## Military Student Advisory

Veterans, active duty military personnel, and dependents are encouraged to connect with the VETS program, a space dedicated to supporting our military-connected students. Please communicate, in advance if possible, any special circumstances (e.g., upcoming deployment, drill requirements, disability accommodations).

## Resources for Success Summary

1. Canvas Discussion Board
2. My Office Hours
3. Free Tutoring with the Paul Foster Academic Success Center
  - (254) 710 - 8696
  - [www.baylor.edu/support\\_programs](http://www.baylor.edu/support_programs)
  - Website for tutor and course availability:  
<https://successcenter.web.baylor.edu/tutoring>
  - Located in the Sid Richardson 1st Floor Study Commons
4. The Math Lab
  - Free tutoring for all math courses
  - No appointments or reservations - just walk in!
  - Meets in Sid Rich 326:
    - **Mondays - Fridays 3:30 pm - 5:30 pm**
5. Private (paid) Tutoring
  - <https://math.artsandsciences.baylor.edu/undergraduate-program/math-lab-and-tutors>

## Syllabus Disclaimer

The instructor reserves the right to modify or adapt the course schedule, policies, and requirements as deemed necessary. You are responsible for all announcements made in class regardless of whether or not you are in class.

Last updated: Jan 13, 2026

## Contents

- Chapter 1. Linear Equations in Linear Algebra
  - 1.1 Systems of Linear Equations  
1, 3, 5, 7, 9, 11, 19, 21, 23, 24, 25, 26, 27-34, 35, 36, 37, 38, 43, 44
  - 1.2 Row Reduction and Echelon Forms  
1, 3, 5, 7, 9, 11, 13, 19, 21, 22, 23, 24, 25-34, 35, 36, 37, 38, 39, 40, 41, 42, 43
  - 1.3 Vector Equations
  - 1.4 The Matrix Equation  $Ax = b$
  - 1.5 Solution Sets of Linear Systems
  - 1.6 Applications of Linear Systems
  - 1.7 Linear Independence
  - 1.8 Introduction to Linear Transformations
  - 1.9 The Matrix of a Linear Transformation
- Chapter 2. Matrix Algebra
  - 2.1 Matrix Operations
  - 2.2 The Inverse of a Matrix
  - 2.3 Characterizations of Invertible Matrices
- Chapter 3. Determinants
  - 3.1 Introduction to Determinants
  - 3.2 Properties of Determinants
- Chapter 4. Vector Spaces
  - 4.1 Vector Spaces and Subspaces
  - 4.2 Null Spaces, Column Spaces, Row Spaces, and Linear Transformations
  - 4.3 Linearly Independent Sets; Bases
  - 4.4 Coordinate Systems
  - 4.5 The Dimension of a Vector Space
- Chapter 5. Eigenvalues and Eigenvectors
  - 5.1 Eigenvectors and Eigenvalues
  - 5.2 The Characteristic Equation
  - 5.3 Diagonalization
  - 5.5 Complex Eigenvalues
  - 5.6 Discrete Dynamical Systems
- Chapter 6. Orthogonality and Least Squares
  - 6.1 Inner Product, Length, and Orthogonality
  - 6.2 Orthogonal Sets
  - 6.3 Orthogonal Projections
  - 6.4 The Gram-Schmidt Process
  - 6.5 Least-Squares Problems
  - 6.6 Applications to Linear Models

