PRACTICAL INFORMATION

Class:	TR 12:30–1:50 pm in MATH 014
Instructor:	Lars Winther Christensen
E-mail:	`lars.w.christensen@ttu.edu`
Homepage:	`www.math.ttu.edu/~lchriste/teaching.html`
Office:	Weeks Hall 347
Office hours:	W 1:30–3 pm, R 3.30–5 pm, or by appointment
WebAssign Class Key:	`ttu 2994 3166` (enrollment optional)

COURSE DESCRIPTION

Linear algebra is the study of systems of linear equations and the related concept of vector spaces. The class is focused on solution of concrete problems.

Required text: *Elementary Linear Algebra,* 8th edition by Ron Larson, Cengage.

Prerequisites: Math 1452 or consent of the department.

Student learning outcomes: Math 2360 satisfies the university's core curriculum requirement in mathematics: *Students graduating from Texas Tech University should be able to demonstrate the ability to apply quantitative and logical skills to solve problems.* It is also a Communication Literacy course. It meets the following TTU general education student learning outcomes for mathematics, that students will:

- Apply arithmetic, algebraic, geometric, statistical, and logical reasoning to solve problems.
- Represent and evaluate basic mathematical and/or logical information numerically, graphically, and symbolically.
- Interpret mathematical and/or logical models such as formulas, graphs, tables, and schematics, and draw inference from them.

In the class, the students will develop skills in manipulating matrices and understand their connections to linear systems of equations. The students will develop an understanding of the concept of vector spaces including bases, linear transformations, eigenvectors, and eigenspaces.

In particular the students will learn to

- Solve systems of linear equations
- Perform matrix arithmetic and compute the determinant of a matrix
- Perform the Gram-Schmidt orthogonalization process
- Compute eigenvalues and eigenvectors
- Recognize vector spaces and determine their bases
- Express a linear transformation as a matrix

LEARNING ASSESSMENT

Graded assessment is done through homework and exams. Other assessment techniques will also be used; these include discussions during office hours and Q&A sessions. Additionally, problems will be assigned for student self-assessment. The homework problems will be assigned out of the textbook and an online test bank; they will be chosen such that they facilitate the students' development of skills in manipulating matrices, solving systems of linear equations, and determining bases for vector spaces. Exam problems will be constructed such as to test if the students have acquired the skills and understanding necessary to perform the five types of operations listed (•) above.

COURSE ORGANIZATION

Of the 29 class periods, 25 will be spent on lectures and in-class activities and 4 on exams and feedback. The plan is to cover sections 1.1–1.2 (2 class periods), 2.1–2.4 (4 c.p.), 3.1–3.4 (3 c.p.), 4.1–4.7 (6 c.p.), 6.1–6.4 (4 c.p.), 7.1–7.2 (2 c.p.), 5.1–5.4 (2 c.p.), and 7.3 (2 c.p.) with examples drawn from sections 1.3, 2.5–2.6, 4.8, 6.5, and 7.4. Exact reading assignments are posted on Blackboard, which is updated after every class.

Exams: In-class exams take place on Thursday 3 October and Thursday 7 November. The final exam is on Saturday 7 December, 1:30–4:00 pm.

Other important dates:

Labor Day	2 September
Last day to drop a course without penalty	9 September
Last day to drop a course or withdraw	18 November
Thanksgiving vacation	27 November – 1 December

Two exams are given during the semester. Homework will be assigned 12 times during the semester. Each assignment has an online part in WeBWorK due by Midnight on Wednesdays, and a written part due in class on Thursdays. Students are encouraged to work together on the homework problems. Results and grades are posted on Blackboard.

Grading policy: On exams and written homework, partial credit for correct steps will be awarded even if the final answer is wrong. Full credit will be given only if the final answer and all intermediate steps are correct. A correct final answer does not *per se* guarantee any credit.

Deadlines and make ups: Homework is not accepted after the deadline. Make-up exams are only given if the original exam was missed for a valid, university approved, reason.

Final grade: Homework (10 of 12 assignments) and exams (3) count towards the final grade with weights as follows: Online homework 25% (2.5% ea.), written homework 10% (1% ea.), in-class exams 35% (17.5% ea.), and final exam 30%.

GENERAL POLICIES

Academic Integrity, Students with Disabilities, Pregnant Students, and Religious Holy Days:

Please see Texas Tech University's required policies
`www.depts.ttu.edu/tlpdc/RequiredSyllabusStatements.php`.

What to do in case of emergency: If a student encounters a personal problem that affects their ability to attend class or complete their work on time, they should immediately contact the Dean of Students office via phone (806-742-2984) or email (`deanofstudents@ttu.edu`). The Dean of Students can help with emergencies including car accidents, death of a family member, inability to afford food, health issues, and more.

In exceptional circumstances, the Dean of Students can authorize exceptions to class policies. That is why it is critically important to immediately inform both your teacher and the Dean of Students office of any emergency. In addition, Title IX reporting and support resources are available at `www.depts.ttu.edu/titleix/`.

What to do in case of an issue with your teacher: Should a student encounter an issue in this course, they must follow these steps, in order. 1. First discuss the issue with the teacher. Explaining your concern calmly and clearly will usually resolve the problem. 2. If the issue is not resolved, or the issue is of a matter that the student is not comfortable discussing with the instructor, the student should contact Dr. Brock Williams (brock.williams@ttu.edu), the Associate Chair for Undergraduate Studies. Do not contact the Dean, Provost, Chancellor, etc, without first following these steps.