PRACTICAL INFORMATION

Class time:	MWF 2:00–2:50 pm
Class room:	ENGPHL 001
Instructor:	Lars Winther Christensen
Office:	MATH 251
Office hours:	M 12:00–1:30 pm and R 1:00–3:00 pm or by appointment
E-mail:	`lars.w.christensen@ttu.edu`
Course homepage:	`www.math.ttu.edu/~lchriste/teaching.html`

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 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 direct questioning, problems to be solved in class, and discussions during office hours. 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 41 class hours, 37 will be spent on lectures and 4 on exams and review. The plan is to cover sections 1.1–1.2 (3 hours), 2.1–2.4 (6 h), 3.1–3.4 (4 h), 4.1–4.7 (8 h), 6.1–6.4 (6 h), 7.1–7.2 (5 h), and 5.1–5.4 (5 h), with examples drawn from sections 1.3, 2.5–2.6, 4.8, 6.5, and 7.4. Exact reading assignments are posted on the course homepage, which is updated after every class.

Midterm exams: In class on 12 October and 16 November.

Final exam: Wednesday 14 December, 4:30–7:00 pm.

Other important dates:

Labor Day Holiday	5 September
Last day to drop a course without penalty	14 September
Last day to drop a course	31 October
Thanksgiving Vacation	23–27 November
Last day to withdraw	2 December

ASSIGNMENTS,, GRADES, AND GRADING

Two in-class 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 Tuesdays, and a written part, due in class on Fridays. Students are encouraged to work together on the homework problems. Results and grades are posted at `www.blackboard.ttu.edu`.

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. The final exam is cumulative and serves as make-up for in-class exams that were missed for legitimate reasons.

Final grade: Homework (10 assignments) and exams (3) are counted towards the final grade with weights as follows: Online homework 25% (2.5% ea.), written homework 10% (1% ea.), in-class exams 40% (20% ea.), and final exam 25%.

GENERAL POLICIES

Academic integrity: It is the aim of the faculty of Texas Tech University to foster a spirit of complete honesty and high standard of integrity. The attempt of students to present as their own any work not honestly performed is regarded by the faculty and administration as a most serious offense and renders the offenders liable to serious consequences, possibly suspension. "Scholastic dishonesty" includes, but it not limited to, cheating, plagiarism, collusion, falsifying academic records, misrepresenting facts, and any act designed to give unfair academic advantage to the student or the attempt to commit such an act. See `www.depts.ttu.edu/opmanual/OP34.12.pdf`.

Students with disabilities: Any student who, because of a disability, may require special arrangements in order to meet the course requirements should contact the instructor as soon as possible to make any necessary arrangements. Students should present appropriate verification from Student Disability Services (SDS) during the instructor's office hours. Please note: instructors are not allowed to provide classroom accommodations to a student until appropriate verification from SDS has been provided. For additional information, please contact SDS in West Hall or call 806-742-2405. Please see more on-line at `www.depts.ttu.edu/opmanual/OP34.22.pdf`

Religious holy days: Students are allowed to take time to travel and observe a religious holy day as detailed in `www.depts.ttu.edu/opmanual/OP34.19.pdf`. Note that prior notice must be given to the instructor in writing.