PRACTICAL INFORMATION

Class hours:	MWF 2:00–2:50 pm
Class room:	CHEM 113
Instructor:	Lars Winther Christensen
Office:	MA 251
Office hours:	M 11:30–12:30 pm, MF 3:00–3:50 pm, R 2:30–3:20 pm, or by appointment
E-mail:	lars.w.christensen@ttu.edu
WebAssign.net key:	ttu 6900 4024
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,* 7th edition by Ron Larson, Cengage.

Prerequisites: Math 1352/1452 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 relationship 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 (4 hours), 2.1–2.4 (5 h), 3.1–3.4 (3 h), 4.1–4.7 (9 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, 4.8, 6.5, and 7.4. Exact reading assignments are posted on the course homepage, which is updated after every class.

Exams: In-class exams take place on 12 Oct. and 16 Nov. The final is on 12 Dec., 4:30–7:00 pm.

Other important dates:

Labor Day	3 Sep.
Last day to drop a course without penalty	12 Sep.
Last day to drop a course	29 Oct.
Thanksgiving	21–25 Nov.
Last day to withdraw	30 Nov.

ASSIGNMENTS, GRADES, AND GRADING

Two in-class exams are given during the semester. Homework will be assigned 12 times during the semester and is due on Mondays. Each assignment has an online part in WeBWorK that counts for 90% and a written part that counts for 10%. 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. In-class exams cannot be made up; the final exam serves as make-up for exams that were missed for legal reasons.

Final grade: Homework (10 assignments) and exams (3) are counted towards the final grade with weights as follows: Homework 30% (3% ea.), in-class exams 40% (20% ea.), and final exam 30%.

GENERAL POLICIES

Academic integrity: It is the aim of the faculty of TTU to foster a spirit of complete honesty and a high standard of integrity. Any attempt of students to present as their own any work that they have not honestly performed is regarded by faculty and administration as a serious offense and renders the offenders liable to serious consequences, possibly suspension. Please see more information on-line at www.depts.ttu.edu/studentaffairs/CampusCrime/documents/integritymatters.pdf.

Civility in the classroom: You are expected to be courteous to me and your fellow students. This means that your cell-phone should be turned off during the class; you shall not chat with your friends during class, eat meals or snacks, or cause a distraction in any other way.

Officially approved trips: Students are allowed to miss class for trips officially sanctioned by TTU. The student must notify the instructor of upcoming trips and present written authorization.

Religious holy days: You are allowed to take the time to travel and observe a religious holy day. Prior notice should be given at least one week before the absence.

Students with disabilities: Any student who, because of a disability, may require special arrangements in order to meet course requirements should contact the instructor as soon as possible to make any necessary arrangements. Students should present appropriate verification from Student Disability Services during the instructor's hours. Please note instructors are not allowed to provide classroom accommodations to a student until appropriate verification from Student Disability Services has been provided. For additional information, you may contact the Student Disability Services office at 335 West Hall or 806-742-2405.