

Course Information

Math 2360–002, Linear Algebra

Fall, 2015

CRN 13900

August 24, 2015

Instructor: Prof. Lance D. Drager. Office: Math 236. Office Phone: 834-8161. If you let the office phone ring long enough, you'll get me or a voice mail system you can leave a message on. My e-mail address is `lance.drager@ttu.edu`.

Course materials will sometimes be posted on my web page, which is <http://www.math.ttu.edu/~drager>.

Announcements and Class Forum: This term we will be using Piazza for class discussion. The system is highly catered to getting you help fast and efficiently from classmates, the TA, and myself. Rather than emailing questions to the teaching staff, I encourage you to post your questions on Piazza. You can post a question anonymously, if you want. If you have any problems or feedback for the developers, email `team@piazza.com`.

Sign up for our site at piazza.com/ttu/summerterm12015/math2360002

Find our class page at: piazza.com/ttu/summerterm12015/math2360002/home

I will check this site at least once each business day.

I will also post class announcements (including assignments) on Piazza, so check it to see what is happening.

If your message is not of general interest to the class, or you want to keep it private, send it to me privately or use my regular email (email address above).

There is a formula editor for generating and posting mathematical formulas in \LaTeX . This is the standard system for doing math on computers in science and engineering, so it's worth learning about it. The Piazza help has a link to a tutorial, and there are many resources for \LaTeX on the web (we only need to look at how to do formulas, not how to do a whole document).

Alternatively, you can use the equation editor in Piazza, and if you search for online equation editors on the web, you'll find WYSIWYG editors with a mouse/menu interface that produce the \LaTeX code for the formula, which you can then cut and paste into Piazza (put it between double dollar signs: $\$ \$ \dots$

\$\$). Some of these editors also produce PNG or GIF files you can paste into email, if you need to do that. (If you use Thunderbird, look for \LaTeX plugins.) I can't really tell you which editor is the best. This is a topic the class may want to discuss.

Office Hours: MF 2:00-5:00, W 2:00 to 3:00, unless I have an appointment. These hours are subject to change. You can come by outside of formal office hours; I'll usually have time to talk to you. Please feel free to come by if you need help.

Other Sources of Help: The tutoring center may be able to help you. The tutoring center will give you a link for an online list of people who offer tutoring for pay. Forming informal study groups with other students can be very helpful. I encourage you to ask me questions, and I encourage students to work together in room 238 during my office hours when I can help.

Text: The text is: Ron Larson, **Elementary Linear Algebra, Seventh Edition**, Brooks/Cole, 2013, ISBN 9781133110873. We will cover approximately Chapters 1–4, 6–7, and material from Chapter 5, as time permits.

Calculator: A TI-89 or better calculator is **required** for this class. You will need it on exams! To check if a different model of calculator is acceptable, show it to the instructor.

Learning Outcomes: M2360 satisfies the university 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.

Students develop skill in manipulating with matrices and understand their relationship to linear systems. They understand the concept of bases and vector spaces, as well as, eigenvectors and eigenspaces.

In particular, students

- perform basic vector algebra, and compute their bases
- express a linear transformation as a matrix
- perform basic matrix manipulations, and compute the determinant of a matrix
- compute eigenvalues and eigenvectors

- use the Gram-Schmidt process

Assessment of Learning Outcomes: The assessment of student's mastery of the skills and concepts as specified in the expected learning outcomes will occur, with appropriate course grades assigned, as follows:

1. 3 in-class exams
2. A takehome exam
3. The final exam
4. Exam corrections
5. Homework.

The final and the exams are equally weighted. The lowest exam score will be dropped. This could be the score on the final. If you are satisfied with your score on the first three exams, you don't have to take the final or show up at the final exam session. If you don't take the final, the score will be a 0, which will be dropped. On the other hand, taking the final can't hurt your score. I will apply a curve to the scores on the exams.

The the exams will count for 60% of the final grade. The exam corrections will count for 15%, and the homework will count for 25%.

The procedure for the exam corrections will be discussed in class after the first exam.

The 90-80-70-60 cut offs will be sufficient for the final grade, but the cutoffs may go a bit lower; I can't say until I see all the scores.

The homework will be mostly on the Webwork system, but there will be some pencil and paper assignments.

There will be a link to the Webwork site for our course posted on my website.

Your username on Webwork is your eraider name, but the initial password is your R number (including the capital R). Please wait for an announcement before trying to get on Webwork.

If you need help getting started on a problem you are highly encouraged to talk with me. You *may* discuss the homework problems with your classmates, but after understanding how to do it, go off by yourself and write up the assignment; don't just copy someone else's writeup.

Final Exam: The final exam is on Friday, Dec. 4, from 7:30am to 10:00am. It will be in our usual classroom.

Makeups: If you are absent from an exam and convince me that your reason was legitimate, I will give a makeup exam. For late homework I may require a serious, legitimate excuse.

Class Schedule: The tentative schedule for the class is as follows:

August 24–31 Chapter 1, Systems of Linear Equations

Sept. 5–11 Chapter 2, Matrices

Sept. 9 Exam 1
Sept. 16–21 Chapter 3, Determinants
Sept. 14–Oct. 14 Chapter 4, Vector Spaces
Oct. 16– Nov. 2 Chapter 6, Linear Transformations
Oct. 5 Exam 2
Nov. 4–16 Chapter 7, Eigenvalues and Eigenvectors
Nov. 16 Exam 3, Takehome, handed out
Nov 18–Dec. 2] Chapter 5, Inner Product Spaces
Nov. 24 Exam 3, Takehome, due
Dec. 2 Last Day of Classes
Dec. 4 Final Exam, 7:30am–10:00am

If these dates are changed, the changes will be discussed in class and will appear on the calendar on my website. However, **this document will not be changed.**

Class Attendance: To begin with, I will not count attendance towards the grade, although I may pass out a sign up sheet to check the class roll. Many studies show that class attendance is *very* important in getting a good grade. *I will institute an attendance system if it seems necessary!*

Remember, you are responsible for all material covered in class and all announcements made in class or on Piazza. If you have to miss a class, you should check with Piazza and me or a classmate to see what happened.

Formative Assessment: Continuous formative assessment of the progress of the course will occur via ongoing communication between the instructor and the students. To this end, all students are encouraged to ask questions during class and to seek the instructor's help out of class when needed. Other activities in support of student-instructor communication will include: practice exams and quizzes, review of homework, and personal interviews with students doing poorly on work assigned at the beginning of the course.

Identification: You should be prepared to show your Texas Tech picture ID at any quiz or exam.

Accommodations for 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 necessary accommodations. Students should present appropriate verification from Disabled Student Services, Dean of Students Office (AccessTECH). No requirement exists that accommodations be made prior to completion of this approved University process.

Religious Holy Days: A student may be absent from class for a religious holy day, as legally defined, and will be allowed to make up any missed examination or assignment within a reasonable time after the absence. See http://www.depts.ttu.edu/officialpublications/catalog/_AcademicsRegulations.php

Academic Misconduct: It is the aim of the faculty of Texas Tech University to foster a spirit of complete honesty and a high standard of integrity. The attempt of students to present as their own work any work that they have not honestly preformed is regarded by the faculty and administration as a serious offense and renders the offenders liable to serious consequences, possibly suspension.

For more information, and a description of what is considered to be misconduct, see http://www.depts.ttu.edu/officialpublications/catalog/_AcademicsRegulations.php

Civility in the Classroom: Students are expected to assist in maintaining a classroom environment that is conducive to learning. In order to assure that all students have the opportunity to gain from time spent in class, unless otherwise approved by the instructor, students are prohibited from engaging in any other form of distraction. Inappropriate behavior in the classroom shall result, minimally, in a request to leave class. For more information, see http://www.depts.ttu.edu/officialpublications/catalog/_AcademicsRegulations.php