Course Information

Math 2360–D01

Fall 2015

January 15, 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`.

Office Hours: MWF 2:00–4:00. 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. I will announce later how you can use Skype to talk with me. If you're in Lubbock, face to face is best.

Other Sources of Help: The Mathematics Department Office has a list of people who offer tutoring for pay. Forming informal study groups with other students can be very helpful.

Course Organization: This is a distance learning course, done mostly online. A course like this requires a student to be more self motivated than a regular course. You'll have to watch the videos, read the reading assigments in the book, and work on the problems and seek out help if you need it.

We'll do most of our communicates through the Piazza website. The url is `piazza.com/ttu/spring2015/math2360d01/home`. If you don't receive an email that you are signed up, you can sign up for the site at `piazza.com/ttu/spring2015/math2360d01`

I will use this site for making announcements and for making assigments. It provides a forum where everyone in the class can communicate with each other. I has the capability to put mathematical notation in messages, overcoming a common online problem. I very much encourage the students to post mathematical questions on the site and discuss them among themselves. I will put my 2 cents in where it seems appropriate. On personal matters, you can exchange private messages.

I will post links to video lectures on important topics. For the rest, you'll have to read the book and ask questions. Other resources will be announced.

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. 2 proctored exams
2. A Takehome exam
3. Final Exam
4. Exam Corrections
5. Homework, some online, some with pencil and paper.

The exams are equally weighted and I will drop the lowest of the four, which could be the final. If you don't take the final, the score on the final will be 0, that will be your lowest score, so it will be dropped.

For each exam, I will determine a grade range for the A's, B's, C's, D's and F's. I will then linearly resale the grades in the A range to the interval $[90, 100]$, the grades in the B range will be rescaled to the interval $[80, 89]$, and so forth.

For example, consider a hypothetical exam with the raw scores as in Table 1. The grade ranges might hypothetically be chosen as indicated. The numerical scores would then be rescaled as indicated in the table, using the formulas on the right and then rounding to the nearest point. The grade rescaling function would be as graphed in Figure 1.

The Exam Corrections category will give you a chance to get some points by reworking the problems you got wrong on the first two exams. I take the highest score from the original exam and the corrections for that exam, so if you don't turn in corrections, your score for the corrections will be the score on the original exam.

The weight of these categories in the final grade will be: Exams 50%, Exam Corrections 15%, and Homework 25%.

At the end of the course, I will average the grades and assign letter grades with cutoffs 90% for A, 80% for B, 70% for C and 60% for D; I might lower these a little, but not much. Thus, with this system, you can determine your standing at any time.

Exam Proctoring: For the first two exams and the final, we will make a time and place where I can proctor the exams for people in Lubbock. Students who don't make it to those sessions will have to make arrangemnts at a certified Testing Center. You can find one at any university, college or community college. There is more information on my website, and a form for the Testing Center to fill out. You can get it to me by surface mail, email or fax.

Text: The text is Ron Larson, **Elementary Linear Algebra, Seventh Edition**, Brooks/Cole,2013, ISBN 978-113311087.

Calculator: A symbolic calculator like the TI-89 or TI Voyage 200 is **required**!

Learning Outcomes: Student Learning Outcomes: M2360 satisfies the university core curriculum requirement in Mathematics: Students graduating

from Texas Tech University should be able to d emonstrate 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.

Course Schedule

1/14–1/28 *Chapter 1: Systems of Linear Equations*

1/26–2/4 *Chapter 2: Matrices*

2/9 *Exam 1*

2/6-2/13 *Chapter 3: Determinants*

2/16-3/4 *Chapter 4: Vector Spaces*

3/6–3/25 *Chapter 6: Linear Transformations*

3/9 *Exam 2*

4/13 *Takehome Exam (Exam 3) handed out*

4/15–4/27 *Eigenvalues and Eigenvectors*

5/4 *Last Day of Classse* Exam 3 due.

Makeups: If you miss an exam you can, at your option, take that as the exam score to be dropped. If you are absent from an exam and convince me that your reason was legitimate, I will give a makeup exam. Late homework will only be accepted with a serious, legitimate excuse.

Homework on the Web: Some of the homework will be done on the world wide web using the Webworks system. There will be link to the homework site on my homepage. Your username is your eraider name. The initial password is your Id number (starts with R). Change the password after you log in.

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 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 an-

nouncements made in class. If you have to miss a class, you should check with 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`

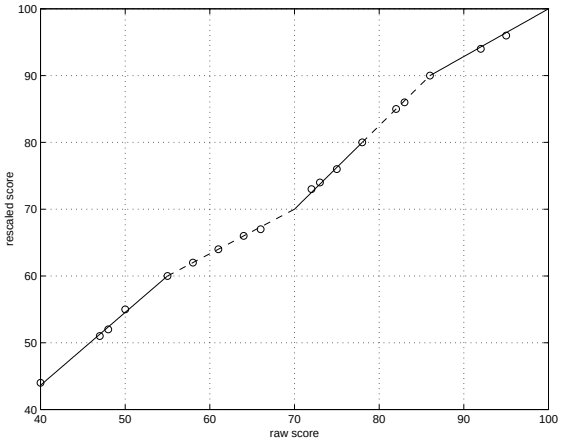

Figure 1: Graph of the grade rescaling function

	Raw (x)	Rescaled (y)	
A	95	96	$y = \frac{100-90}{100-86}(x-86)+90$
	92	94	
	86	90	
B	83	86	$y = \frac{90-80}{86-78}(x-78)+80$
	82	85	
	78	80	
C	75	76	$y = \frac{80-70}{78-70}(x-70)+70$
	73	74	
	72	73	
	(cut off at**70**)		
D	66	67	$y = \frac{70-60}{70-55}(x-55)+60$
	64	66	
	61	64	
	58	62	
	55	60	
F	50	48	$y = \frac{60}{55}x$
	48	52	
	47	451	
	40	44	

Table 1: Grade rescaling