

**Math 3323**  
**Linear Algebra**

**Fall 2013**  
**Dr. Ryan C. Daileda**

**Course URL:** <http://www.trinity.edu/rdaileda/linalg>

**Office Hours and Contact Information:** Consult either of the above web pages.

**Textbook:** *Linear Algebra and Its Applications* (fourth edition) by David C. Lay

**Course Content:** Linear algebra is the study of vector spaces and the transformations between them. Our approach will be roughly equal parts algorithmic computation and theoretical abstraction. We will begin concretely, considering systems of linear equations, focusing on their connection to column vectors, matrices and matrix algebra. This will lead us to the ideas of linear independence, dimension, linear transformation, subspace and rank. After a brief tour of determinants, we will abstract these concepts to the realm of (real) vector spaces, finding a connection back to the concrete through the notion of bases and coordinates. This will allow a more thorough study of linear transformations through their eigenvalues and eigenvectors. Finally, we will consider the geometry of vector spaces endowed with inner products, focusing in particular on orthogonality and the Gram-Schmidt process.

**Homework:** Homework will be assigned daily and will consist of reading as well as problem solving. Assignments will be collected weekly, typically on the Wednesday following the day they are assigned. **Due dates will be clearly indicated on the course homework web page.** Late homework will not be accepted in the absence of divine intervention or matters of similar weight. **I reserve the right to penalize unexcused late work as I see fit.**

Assigned exercises will come in two varieties: **graded** and **practice**. Graded exercises are those whose solutions are to be written up (see guidelines below) and handed in on the specified due date. Your work on these exercises will be evaluated and returned to you. Practice exercises are intended to help direct your studying and give you an opportunity to refine your skills, and will be essential to your mastery of this course. You will find it very difficult to become proficient in Linear Algebra (indeed, in *any* math course) if you do not spend a significant amount of time working through practice exercises. While **solutions to practice exercises are not to be turned in**, I fully expect every student to be able to successfully solve each practice exercise. In particular, **both graded and practice exercises are fair game for exam material.**

Graded homework exercises must be written **neatly**, and multiple pages should be stapled together **before** you come to class. Do not use paper from a spiral notebook unless you can tear off the ragged edge. **Failure to adhere to these guidelines will be penalized. Unorganized, sloppy or illegible work will not be graded!**

All written homework assignments will carry equal weight toward the homework component of each student's grade (see "Grades" below), with the exception that **each student will have his or her lowest homework score dropped.**

Collaboration on homework assignments is permitted and encouraged, and you should feel free to talk to other students while you are in the process of thinking about a problem. However, it is never acceptable to simply pass off someone else's work as your own. Therefore, **you must cite any source used in work that is to be turned for a grade, whether it is another textbook, the internet, or a classmate.** The only sources you do not need to specifically cite on your written work are the course textbook, my assistance, or help from a departmental peer tutor.

**Attendance:** Attendance is highly encouraged but is not mandatory. Roll will not be taken, but excessive absences should be explained to me.

**Exams:** There will be two evening midterm exams during the semester as well as a cumulative final exam. The dates and times for the exams are as follows:

<b>First Midterm Exam</b>	Monday, September 30, 7:30 - 9:00 PM
<b>Second Midterm Exam</b>	Monday, November 4, 7:30 - 9:00 PM
<b>Final Exam</b>	Tuesday, December 17, 8:30 - 11:30 AM

The location of each exam will be announced in class and posted on the course web page. Please be aware that **the final exam will not be given early to accommodate travel plans.**

No assistance of any kind is allowed on exams, except for resources that I may distribute with the tests. This means that the use of books, notes, calculators, computers, PDAs, cell phones, etc. will not be permitted during exams. The only things you need to bring with you on the day of any exam are a pencil, an eraser and a positive attitude.

**Use of Previous Exams:** Students are permitted to obtain and study exams given in previous offerings of this course. However, **previous exams should not be used to judge the content or difficulty of the exams that will be given in this course.**

**Grades:** Your grade in the course will be based upon your scores on the homework, midterm exams, and the final exam. The values of each of these components are as follows:

<b>Homework</b>	100 points
<b>Midterm Exams (2)</b>	100 points (each)
<b>Final Exam</b>	200 points
<b>Total</b>	500 points

So you can gauge your performance throughout the semester, a score distribution will be posted online following each exam.

**Expectations:** I expect each student to invest a significant amount of time and effort outside the classroom for every hour of lecture. To effectively study for this course it is essential that you **carefully read the assigned portions of the textbook and work through as many practice problems as possible**, as well as go over your lecture notes and turn in written assignments. Even though written work will not be collected daily, **you are strongly encouraged to keep up with reading and problems as they are assigned.** I have no sympathy for students who routinely save all of their work for the night before it is due.

**Classroom Decorum:** Please be respectful of your classmates and myself. Although I encourage everyone to ask me questions as needed, and would like to foster classroom discussion, talking or texting between students during a lecture can be extremely distracting and should be kept to a minimum. The 2.5 hours we spend in class each week should be dedicated to learning mathematics, and is not a forum for expressing general frustrations with the course. Please bring any such concerns directly to me during office hours.

**Technology:** Calculators and computers can be useful tools, especially for row reduction of matrices, and should you feel the need, you may freely use them while completing assignments. You are not required to own a calculator, but I may ask you to use a computer algebra system in certain homework problems. Be aware, however, that **computers and calculators will not be allowed during exams, so you should not become dependent on their use.**

**Academic Integrity:** All students are covered by the Trinity University Honor Code that prohibits dishonesty in academic work. Under the Honor Code, a faculty member will (or a student may) report an alleged violation to the Academic Honor Council. It is the task of the Council to investigate, adjudicate, and assign a punishment within certain guidelines if a violation has been

verified. Students who are under the Honor Code are required to pledge all written work that is submitted for a grade: “On my honor, I have neither given nor received any unauthorized assistance on this work” and their signature. The pledge may be abbreviated “pledged” with a signature.

The specifics of the Honor Code, its underlying philosophy, and the norms for sanctioning can all be found on the Academic Honor Council website, accessed through the Trinity Homepage:

[http://www.trinity.edu/departments/academic\\_affairs/honor\\_code/](http://www.trinity.edu/departments/academic_affairs/honor_code/)

**Special Needs:** If you have a documented disability and will need accommodations in this class, please speak with me privately early in the semester so I may be prepared to meet your needs. If you have not already registered with Disability Services for Students, contact the office at 999-7411. You must be registered with DSS before I can provide accommodations.