

Math 2164: Linear Algebra

Section 090, Smith 219, TR 6:30pm – 7:45pm

Instructor: Sarah Birdsong

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Office Hours:

TBA

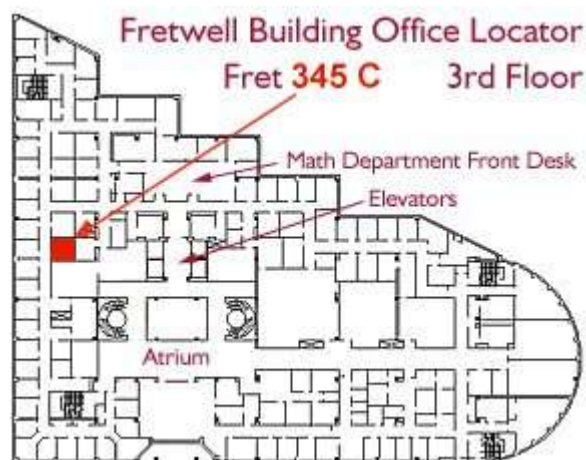
Text/Material(s):

Linear Algebra & Its Applications

by David C. Lay, 3rd Edition

TI-83 Calculator (or equivalent, optional)

Matlab (you can access this program from either of the two computer labs in Fret, 3rd floor)



Class Website: <http://www.math.uncc.edu/~sjbirdso/linalg/>

General Info:

In this course, we will cover solving linear systems using matrices, matrix properties, vector spaces, and limited applications of these topics. (ie: Lay's textbook chapters 1 through 5 and selected sections from chapter 6 if we have time.) There will be two types of homework sets, computer projects using Matlab, and daily quizzes. All homework sets, projects, and class handouts can be found on the class website. There will be 2 take-home tests (test 1 & test 3) and 2 in-class tests (midterm & final); there will be a review for each in-class test during the class time before that test. There will be opportunities for extra credit on both the class tests and the homework. I expect every student to attend each class and will take attendance.

homework & projects	25%
quizzes (in class)	10%
2 tests (take home)	25%
midterm (in class)	15%
final (in class)	25%

Questions about Homework or Other Problems/Examples:

Bring any questions to class. If we do not have time to go over all the questions at the beginning of class, you can ask me after class, come by my office, email me, or call me.

Make-Up Work (Quizzes, Homework, & Tests):

You must come to me ahead of time to arrange for make-up work.

I won't guarantee to grade late homework; however, any homework turned in will get a better grade than no homework turned in.

Guidelines for Submitting Assignments:

- **Your Name** and the chapter section or the activity name need to be on each activity, project, or homework set handed in.
- Anytime you work problems on your own sheet of paper, the **entire question needs to be copied out** then show your work and give your answer.
- If a homework set or project has multiple pages, these pages **must** be stapled together. Do not staple multiple homework sets or projects together. (Multiple sets handed in on the same piece of paper **will not be graded**.)
- A graded homework set or a project will be due every Tuesday on which we have class. Check the syllabus or homework page on the class website to see when specific items are due.
- Late Submissions (only applicable for graded homework sets & Matlab projects)
 - If you get the assignment to me before Midnight, it won't be counted as late.
 - If you have a **REALLY GOOD EXCUSE**, there will be no late penalty.
 - If your work is late and you don't have a good reason:
 - Your grade will be **10% lower** than what you would have gotten
 - I won't guarantee that I will grade late homework
 - If the solutions have already been posted online, the set will not be graded.
 - ***NOTE: A LATE GRADE IS MUCH BETTER THAN A ZERO***

Cheating Policy:

While I encourage you to use any and all resources at your disposal to complete homework and project assignments, I expect that for tests and quizzes your work is entirely your own and that you have not used any unauthorized materials. If I find you have cheated or have intentionally aided a classmate in cheating, you will receive a zero on that test or quiz. It is your responsibility to know the academic integrity code and our class policy on cheating. If you have questions on a situation or how the policies apply to this class, feel free to ask me.

Definition of Cheating: Intentionally using or attempting to use unauthorized materials, information, notes, study aids or other devices in any academic exercise. This definition includes unauthorized communication of information during an academic exercise.

Common Examples: Copying from another student's paper or receiving unauthorized assistance during a quiz, test or examination; using books, notes or other devices (e.g., calculators or cell phones) when these are not authorized; procuring without authorization tests or examinations before the scheduled exercise (including discussion of the substance of examinations and tests when it is expected these will not be discussed).

Complicity in Academic Dishonesty: Intentionally or knowingly helping or attempting to help another to commit an act of academic dishonesty.

Common Examples: Knowingly allowing another to copy from one's paper during an examination or test; sharing calculators during an exam; knowingly distributing test questions or substantive information about the material to be tested before the scheduled exercise; or signing a false name on an academic exercise.

* These definitions and examples were taken and slightly adopted from University Policy Statement #105: the Code of Student Academic Integrity, section III (<http://www.legal.uncc.edu/policies/ps-105.html#III>)

Date	Topics covered	Homework/Project Sets due
Jan 12	Introduction & Review 1.1: Systems of Linear Equations	
Jan 14	1.2: Row Reduction & Echelon Forms	review set
Jan 19	1.3: Vector Equations, Vector Spaces 1.4: Matrix Equations $Ax = b$	project 1
Jan 21	1.5: Solutions of Linear Equations 1.6: Applications of Linear Systems	
Jan 26	1.7: Linear Independence 1.8: Linear Transformations	hw set 1
Jan 28	1.8: Linear Transformations 1.9: Matrices of Linear Transformations 1.10: Some Linear Models	Test 1 handed out
Feb 2	1.10: Some Linear Models 2.1: Matrix Operations 2.2: The Inverse Matrix	project 2
Feb 4	2.2: The Inverse Matrix 2.3: Characterization of Invertible Matrices	Test 1 due
Feb 9	2.4: Partitioned Matrices	hw set 2
Feb 11	2.5: Matrix Factorization (LU Factorization)	
Feb 16	2.6: Leontief Model	project 3
Feb 18	2.7: Computer Graphics	
Feb 23	3.1: Introduction to Determinants	hw set 3
Feb 25	3.2: Properties of Determinants	
Mar 2	3.3: Cramer's Rule Review for Test 2	project 4
Mar 4	<i>TEST 2: MIDTERM (INCLASS)</i>	
Mar 9	SPRING BREAK - NO CLASS	
Mar 11	SPRING BREAK - NO CLASS	
Mar 16	4.1: Vector Spaces & Subspaces	hw set 4
Mar 18	4.2: Null Spaces, Col. Spaces, & Linear Trans.	
Mar 23	4.3: Linearly Independent Sets & Bases	project 5
Mar 25	4.4: Coordinate Systems	
Mar 30	4.5: Dimension of a Space	hw set 5
Apr 1	4.6: Rank	
Apr 6	4.7: Change of Basis	project 6
Apr 8	5.1: Eigenvectors & Eigenvalues	Test 3 handed out
Apr 13	5.2: Characteristic Equation	hw set 6
Apr 15	5.3: Diagonalization	Test 3 due
Apr 20	5.4: Eigenvectors & Linear Transformations	project 7
Apr 22	6.1: Inner Product, Length, & Orthogonality	
Apr 27	6.2: Orthogonal Sets 6.3: Orthogonal Projections	hw set 7
Apr 29	6.4: Gram-Schmidt & QR Factorization	
May 4	Review for Final	hw set 8 & project 8 (last day to turn in any work)
May 5	READING DAY - NO CLASS	
May 11	<i>FINAL EXAM (INCLASS)</i> 8pm - 10:30pm	