

## Math 4910-LD: Applications of Linear Algebra and Differential Equations Fall 2007

Instructor: James Powell  
 TA: Andrew Merrill  
 Office Hours:  
 Classroom:  
 Time:

Office: Lund Hall (Math) 304  
 Lund Hall 201-C  
 6 – 7:30 PM Tuesday  
 Engineering 401  
 7:15 – 9:45 PM Tuesday

**Text** *Linear Algebra and Its Applications, Third Edition (Update)*, by David C. Lay. Parts of chapters 1-6 will be covered, along with additional material from differential equations. The differential equations material will be taken from Chapters 1, 2, 5 and 7 of Edwards and Penney, *Differential Equations and Linear Algebra*, Second Edition.

**Tests** There will be no tests.

**Homework** Daily homework assignments will be given in class and posted on Blackboard Vista. First homework will be due before midnight on Thursday, September 6 and will be due every two weeks thereafter. Homework given *the week* of the Thursday due date will be collected on the *subsequent* Thursday. Homework which is late by less than 24 hours will only be worth 50%; homework which is more than 24 hours late will not be counted. Each homework is worth 50 points; a student's top 7 scores will count for their homework grade.

**Turning in Homework** Homework may be submitted in three new and improved ways. Best option: scan your homework and upload a PDF document using Blackboard Vista. You may also hand the homework to the TA or I physically. If all else fails you may fax the homework to the Department of Mathematics, (435) 797-1822 (use a cover sheet and clearly indicate class and intended recipient).

**Grading** Each homework counts 50 points and the top seven comprise your homework grade. The TA will track class participation as well; participation will count for 50 additional points in the class. The A,B,C,D,F scale will be applied percentage-wise.

Item	Points	Percentage	Grade	Percentage	Grade
		94-100	A	73-75.9	C
Homework (7)	350	90-93.9	A–	70-72.9	C–
Participation	50	86-89.9	B+	65-69.9	D+
Total	400	83-85.9	B	60-64.9	D
		80-82.9	B–	00-59.9	F
		76-79.9	C+		

**Office Hours** My drop-in office hours will be MWF 10:30-12:30 and Tuesday at 6PM. My office is in the Mathematics building, Lund Hall, room 304. Contact me at [jim.powell@usu.edu](mailto:jim.powell@usu.edu) to schedule a face-to-face meeting outside of these hours. The TA will be available via email and web chat at hours TBA.

**Contacting the TA** Feel free to contact the TA, **Andy Merrill**, by email: [acmerrill@cc.usu.edu](mailto:acmerrill@cc.usu.edu). Andy will also manage the on-line chat and threaded homework discussions.

**Students with Disabilities** USU offers a variety of services to assist students with permanent or temporary physical challenges; contact me or the Disability Resource Center (797-2444) if you feel that you could benefit from these programs.

**Disclaimer** Any policy changes will be announced and discussed in class. It is the student's responsibility to keep apprised of the current schedule.

### Homework Preparation

1. Work must be presented on 8.5x11 inch loose leaf paper (*not* torn from a loose-leaf or spiral binder). Graph or Engineering paper is OK, as is paper torn from notepads.
2. Work on only one side of the paper. Name, class, date, and page number should appear in the upper right corner of each sheet. Sheets must be firmly stapled or clipped to one another, in order.
3. A horizontal line drawn across the paper should intersect only one problem. Work in columns, and align relational symbols (that is, =, <, >, etc.) where possible. The exceptions are graphs or diagrams, which may be displayed to the right of the written content of the work, and parallel problem cases, which may be worked in parallel columns (space permitting).
4. The following symbols have specific mathematical meanings, and must be used correctly:

Symbol	English Meaning	Use and Context
=	Equals	Establishes numerical equivalence between two mathematical entities. If you use this, make sure both sides are really equal!
$\Rightarrow$	Implies	Logical relationship; what follows the implication is <i>necessary</i> given whatever comes before the implication. Use only if there is a logical dependency between mathematical statements.
$\rightarrow$	'Has the limit'	Limiting relationship; statement indicates that the given variable approaches the value on the right hand side. Use only for mathematical convergence.

5. Obey rules of punctuation and grammar. When mathematics and words must be mixed, remember that relational symbols act like verbs of being, and the right and left hand sides of a relation are considered subjects and objects. If a homework problem asks a specific question, be sure to answer with a complete sentence.
6. I give partial credit, so show your work and when in doubt put a step in or describe what you are doing. Conversely, answers without sufficient mathematical justification *won't* receive full credit.
7. **Algebraic and basic calculus errors will not be tolerated.** While the occasional factor of two or  $\pm$  is impossible to get right all the time, basic errors in understanding and algebraic manipulations incur grading with prejudice.
8. Graphs are required to have labeled axes and indications of scale.
9. The work we are doing is too complex to complete effectively in a disorganized fashion. Homework will be rigorously organized and ordered, with the mathematical progression of a problem indicated clearly through the use of appropriate relational symbols, spacing, and use of columnar formatting.
10. **I will deduct points when these rules are violated.**

### Things to Remember

- ♥ Zippy the Pinhead: A student without a calculator is like a shoe-clerk without weapons of mass destruction.
- ♠ The *Tao Teh Ching*: A wheel has a rim and many spokes, but the space inside the hub makes it useful. A house has doors, a roof and a window, but it is the space inside which makes it useful.
- ◇ Einstein: Simplify!
- ♣ Nietzsche: That which does not kill us makes us stronger.
- ♥ Schopenhauer: If you add a spoonful of wine to sewage, you get sewage. If you add a spoonful of sewage to wine, you get sewage.
- ♠ Darwin: Ignorance more frequently begets confidence than knowledge.