Course Information
Math 330
Linear Algebra
Spring 2012

Finding me:

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Office hours: Monday 9-10, Tuesday 3-4, Wednesday 2:30-4, Thursday 1:30-3, and by appointment. These are the times I promise to be in my office and available. You are also welcome at any time to check if I am available, either in person or by telephone.

Objectives:

- To improve the ability to reason abstractly and quantitatively and the ability to communicate such reasoning and its results.
- To understand precisely the vocabulary of linear algebra (and there is a lot!) from both algebraic and geometric viewpoints.
- To understand some ways linear algebra can be used, both outside and within mathematics.

Textbook: David C. Lay, *Linear Algebra and its applications, 4th ed.*, ISBN 0-32138-517-9

Attendance: You are expected to come to every class. There will be a short quiz at the beginning of most classes, as explained below.

Homework: There are two separate components to the homework.

First, you are expected to read the section we will cover *before* class. To help guide your reading, I will give you several reading guide questions which are conceptual in nature which you should try to answer for yourself while doing the reading.

Second, for each class, I will assign problems based on the section we covered that class. You are expected to attempt all of the problems before the next class.

Your homework will be evaluated in two ways. First of all, each class will have a quiz based on the homework due the previous class (and assigned two classes ago). Second, with each test you will turn in your homework notebook (or two if you prefer to keep reading guides and problems separately) which will be evaluated (for completeness only) and returned to you the next class.

Class format: Most classes will begin with a short quiz, to be discussed below. After the quiz, we will first discuss homework problems you had trouble with and wish to ask about. After discussing the homework, we will move on to discussing new material starting from the reading guide questions. Your questions about the material will drive class. If no one has questions, I will likely assume everyone understands everything and dismiss class.

Quizzes: Each quiz will include one reading guide question and one homework problem, both assigned *two* classes ago and possibly discussed (if you asked about it) the previous

class. (This means the reading guide question will be about the material discussed the previous class, and the homework problem will be about the material discussed two classes ago.) The quizzes are open notes but *not* open book. "Notes" includes anything that you write or type yourself prior to the beginning of class. I will try to return quizzes the next class but will get behind at certain points during the semester.

Tests: There will be three tests in class, tentatively on February 8, March 9, and April 16. You should let me know about any conflicts preventing you from taking a test in class on the scheduled dates at least one week in advance. Make-up tests will only be given for documented, important conflicts in accordance with the one week policy, or for genuine documented emergencies.

Final exam: The final exam will be on Monday, May 7 at 12:30. Requests to take the final at a different time must be made in writing and be approved by me, the department chair, and the dean. Except in the case of a documented emergency, missing the final exam will result in a grade of F.

Grading: Points are assigned as follows

Homework completion	50 points
Quizzes	10 points each
Tests	100 points each
Final exam	200 points
Total	about 900 points

Tentatively, grade ranges will be (assuming 900 points, or 35 quizzes)

C	540-660
B	660-780
A	780+

This may change depending on the actual difficulty of tests and homework assignments (and hence quizzes). It is unlikely that I will require more points for specific grades, but more likely I will require somewhat fewer.

Disability Accomodations: Reasonable accomodations are available for students with documented temporary or permanent disabilities. All accomodations must be approved through Disability Support Services in order to notify your instructor(s) as soon as possible regarding accomodation(s) needed for the course. Disability Support Services is in the Idaho Commons Building, Room 306, phone 885-6307, email <dss@uidaho.edu>, website <www.access.uidaho.edu>.

Plagiarism and Cheating: Work on exams, tests, and quizzes should be entirely your own, with no help of any kind from any other source. (You may of course ask questions of the instructor or other proctor, but there is no guarantee you will get an answer.)

You are encouraged to discuss the homework problems with other students. You may also look up additional sources on the homework. However, you must write your notes on homework solutions independently. Excessive similarity in style and phrasing between the quizzes turned in by two students or between quiz answers and a found source will be considered suspicious.

Tentative Schedule:

Date	Topics	Reading
Jan 11	Introduction	
13	Linear Equations	1.1
18	Row reduction	1.2
20	Vector equations	1.3
23	Ax=b	1.4
25	Solutions to Ax=b	1.5
27	Applications	from 1.6, 1.10
30	Linear independence	1.7
Feb 1	Linear transformations	1.8
3	Matrix for linear transformation	1.9
6	Review	
8	Test 1	
10	Matrix operations	2.1
13	Inverse of a matrix	2.2
15	Fund. Thm. of invertible matrices	2.3
17	Block matrices	2.4
22	Leontief Model	2.6
24	Computer graphics	2.7
27	Subspaces	2.8
29	Subspaces	2.8
Mar 2	Dimension	2.9
5	Markov Chains	4.9
7	Review	
9	Test 2	
19	Determinants	3.1
21	Properties of Determinants	3.2
23	Eigenvectors and eigenvalues	5.1
26	Characteristic equation	5.2
28	Diagonalization	5.3
30	Coordinate systems	4.4 and 5.4
April 2	Eigenvectors and linear transformations	5.4
4	Discrete Dynamical systems	5.6
6	Abstract vector spaces	4.1 and 4.2
9	Bases and dimension	4.3 and 4.5
11	Differential equations	
13	Review	
16	Test 3	
18	Inner products	6.1
20	Orthogonal sets	6.2
23	Orthogonal projections	6.3
25	Least Squares	6.6
27	Diagonalization of symmetric matrices	7.1
30	Quadratic forms	7.2
May 2	Review	
4	Review	