Math 230 – Honors Introductory Linear Algebra
Spring 2011

Time	Tu-Thu 1:25–2:40 pm
Location	Webster 11
Instructor	Bala Krishnamoorthy
Office	Neill 325
Office Hours	Tue 3:30–5:00 pm, Wed 1:00-3:00 pm, or walk-in.
Email	kbala@wsu.edu
Course web page	http://www.wsu.edu/∼kbala/Math230.html
Book	David C. Lay —
	Linear Algebra and its Applications, Third edition (*updated*).
	Addison-Wesley, ISBN: 0-321-28713-4
References	Gilbert Strang —
	Introduction to Linear Algebra.
	Wellesley Cambridge Press, ISBN: 0-980-23271-6

Description of the Course:

This course will present a low-level introduction to the basics of linear algebra and matrix theory. Topics covered include systems of linear equations, determinants and matrix inverses, rank, eigenvalues, and eigenvectors. Discussions will be limited to real numbers and real spaces. Compared to Math 220 (Introductory Linear Algebra), increased emphasis will be given to proof-type problems and exercises in this Honors course. The software package MATLAB will also be introduced in a reasonably thorough fashion in this course.

Organization and Grading: Twelve (12) homework assignments will be given. Topics relevant for each assignment will be covered at least one week before the day on which it will be due (dates are given in the tentative schedule). Discussion of homework problems with others is allowed, but each person must hand in his or her own written solutions. You must show *all work for all steps* on your homework and exam problems.

It is very important to work sincerely on the homework problems if you want to do well in this course. **Homework should be handed in at the beginning of class on the day it is due. Late homework will NOT be accepted.** If you have any genuine difficulties turning in homework on time, you could discuss it with me well before the due date. The lectures will mostly follow the material presented in the book, but the treatment may differ from that given in the text on a few occasions. I encourage you **not to miss any of the lectures. Following the material covered in class is very important** to do well in the homework assignments and in the exams. While most homework problems will be assigned from the text, a few independent problems may also be assigned.

There will be one mid-term exam and a final exam. Both will be in-class, closed book, and closed notes exams. The final will be a comprehensive exam, i.e., will cover material discussed in the whole course. There will also be a computer project. The *total score* for the course will be calculated using the following weights:

- homework - 30%

- mid-term - 25%

- computer project - 15%

- final exam - 30%.

The least homework grade **from among the homeworks submitted** will be dropped. The total scores for the entire course will be curved to determine the final grades.

Plagiarism or cheating will not be tolerated. Such behavior will result in a zero grade for the graded item and possibly a failing grade for the entire course. Reasonable accommodations are available for students

who have a documented disability. Please notify me during the first week of class of any accommodations needed for this course. Late notification may cause the requested accommodations to be unavailable. All accommodations must be approved through the Disability Resource Center (DRC) in Administration Annex room 206, 335-1566, drc@mail.wsu.edu.

Technology and Computer Assignment: Most of the homework problems could be done by hand. A calculator might be useful for doing some of the work, but I will encourage you **NOT** to use one. **Calculators will NOT be allowed in the exams**.

There will be a computer assignment involving the package MATLAB. You can access MATLAB at any of the computer labs in Neill Hall, or through the mymath page - http://my.math.wsu.edu. You will be asked to log in using your WSU ID. Check under "Software" to run MATLAB (and other packages). You will also be provided remote access to MATLAB on a Math computer (details to be provided later).

Tentative Schedule for Math 230

N.B.: Sections from the text given in braces.

Week	Lec #	Date	Details
1	1	Tue, Jan 11	systems of linear equations (1.1)
	2	Thu, Jan 13	1.1, row reduction, echelon forms (1.2)
2	3	Tue, Jan 18	row reduction, echelon forms (1.2)
	4	Thu, Jan 20	vector equations (1.3) **[HW 1 Due]**
3	5	Tue, Jan 25	matrix equations (1.4)
	6	Thu, Jan 27	solution sets of linear systems (1.5) **[HW 2 Due]**
4	7	Tue, Feb 1	linear independence (1.7)
	8	Thu, Feb 3	1.7, linear transformations (LTs) (1.8) **[HW 3 Due]**
5	9	Tue, Feb 8	linear transformations (1.8)
	10	Thu, Feb 10	matrix of LT (1.9) **[HW 4 Due]**
6	11	Tue, Feb 15	applied linear models (1.10), matrix operations (2.1)
	12	Thu, Feb 17	inverse of a matrix (2.2) **[HW 5 Due]**
7	13	Tue, Feb 22	invertible matrices (2.3)
	14	Thu, Feb 24	review for midterm **[HW 6 Due]**
8	15	Tue, Mar 1	**Midterm Exam**
	16	Thu, Mar 3	intro to determinants (3.1)
9	17	Tue, Mar 8	3.1, properties of determinants (3.2)
	18	Thu, Mar 10	properties of determinants (3.2) **[HW 7 Due]**
10		Tue, Mar 15	*Spring Break*
		Thu, Mar 17	*Spring Break*
11	19	Tue, Mar 22	vector spaces and subspaces (4.1)
	20	Thu, Mar 24	4.1, discussion of computer project **[HW 8 Due]**
12	21	Tue, Mar 29	null spaces, column spaces, LTs (4.2)
	22	Thu, Mar 31	4.2, linearly independent sets, bases (4.3) **[HW 9 Due]**
13	23	Tue, Apr 5	dimension of vector space (4.5)
	24	Thu, Apr 7	rank (4.6) **[HW 10 Due]**
14	25	Tue, Apr 12	eigenvectors and eigenvalues (5.1)
	26	Thu, Apr 14	5.1, characteristic equation (5.2) **[HW 11 Due]**
15	27	Tue, Apr 19	characteristic equation (5.2)
	28	Thu, Apr 21	more on eigenvalues **[HW 12 Due]**
16	29	Tue, Apr 26	length, orthogonality (Chap. 6)
	30	Thu, Apr 28	review for final **[Project due]**
17		**Mon, May 2**	**Final exam (1:00–3:00 pm)**